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A Study of the Preparation and Retention of Work-Based Certified Career and Technical
Education Teachers in South Carolina

by

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Bachelor of Science
Lander University, 1984

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Submitted in Partial Fulfillment of the Requirements

For the Degree of Doctor of Philosophy in

Educational Administration

College of Education

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DEDICATION

I would like to dedicate this dissertation to my wonderful father the late Rossie Kennedy and my beautiful mother the late Arcie Pitts Kennedy. Thank you for all the sacrifices you made for me from the time I was a child throughout my educational career. You always encouraged me to excel in my endeavors, and I will forever appreciate everything you did for me. I will cherish the memories of your love and support forever.

This is also dedicated to the love of my life, my husband Stanley Rivers. I am eternally grateful for your support, patience, and understanding throughout this long process. You never doubted by ability to complete this degree even when I wanted to give up. Thank you for your unconditional love. I could not have done it without you by my side.

Finally, I dedicate this to my awesome family and friends. To my sisters—Joyce, Bernice, Lucy, Judith, and Judy—thank you for encouraging me to achieve my dreams. To my mentor—Ella Savage—I don't think I would have continued this process without your encouragement. In high school, you motivated me to follow your footsteps by becoming a business education teacher. You saw something special in me, and you never accepted anything less than excellence. To Norma Brown—I thank God for a best friend who is honest, caring, and never judgmental. Thank you for praying with me throughout this process. To all of my family and friends that are too numerous to mention by name—I love you all and I dedicate this to you!

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Thanks to my staff at Heyward Career and Technology Center in Columbia, South Carolina. It is my desire that I will use the valuable information that I've gathered to improve myself as your instructional leader. Additionally, I encourage each of you to work diligently to reach your personal and professional goals. Remember that I am here to support you in your endeavors.

ABSTRACT

The purpose of this study was to examine South Carolina's work-based certification program for career and technical education (CTE) teachers. The mixed-methods study included qualitative and quantitative analyses to answer five research questions relating to the certification program and teacher retention: To what extent are best practices evident in South Carolina's CTE work-based certification program? What are the perceptions of CTE work-based teachers who completed the certification program? What are the first, second, and third year retention rates for South Carolina's beginning teachers who received CTE work-based certification from the years 2003-2004 through 2008-2009? Do third year retention rates vary across content areas? Do third year retention rates vary based on teachers' race and gender?

A content analysis was used to determine how South Carolina's work-based certification program compared to the best practices found in current literature. The researcher came up with the following categories to describe components of CTE teacher certification programs: Academic Requirements, Technical Content Requirements, College Courses/Pedagogical Preparation, Support, Current Employment, and Other Components. Results of the study showed that South Carolina's program contains about half of the elements that were identified in educational literature.

In order to examine teachers' perceptions of work-based certification, interviews were conducted using eight CTE teachers who completed South Carolina's work-based certification program since 2002. Content areas included auto technology; cosmetology;

engineering; health sciences; heating and air conditioning; law enforcement; and welding. Interview questions centered on a variety of topics including the types of courses taken and the impact of the program on their decision to remain in teaching. The results of the interviews also provided insight about professional development sessions, mentors/master teachers, and career and technology student organization competitive events.

The researcher used data provided by the State Department of Education (SDE) to determine retention rates for the first three years for all teachers who started between 2003-2004 and 2008-2009. Results revealed that teachers who began in 2006-2007 had the highest retention rates for all three years of 92%, 82%, and 77% respectively. The most drastic decrease in a one-year retention rate occurred with teachers who started in 2003-2004 which represented a 16% decrease. The average third-year retention rate over a span of six years was 65%.

A Chi-Square Test of Independence revealed that a relationship existed between the third year retention rates and the content areas of teacher certification. The study showed that teachers who taught in the Medical content areas remained in the classroom at the lowest rate of 53% even though they represented the largest total number of teachers at 133. Teachers who taught in the Hospitality and Tourism, Family and Consumer Sciences, and Human Services content areas had the largest retention rate of 75% after the initial three years. There was not a significant relationship between retention rates and race and gender.

The findings and conclusions of this study indicate that there is a lack of data for alternative teacher certification programs—especially CTE programs. It is the

researcher's desire that other leaders will find this information helpful as they prepare CTE teachers in South Carolina and beyond.

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CHAPTER 1

INTRODUCTION

Nature and Significance of the Problem

During the past three decades in America, there has been a tremendous reform movement in the field of education which is largely influenced by the publication in 1983 of the National Commission on Excellence in Education's report *A Nation at Risk*.

This influential report observed that the United States was losing ground in international economic competition and attributed the decline in large part to the relatively low standards and poor performance of the American educational system. The report recommended many of the changes subsequently enacted in first-wave reforms: the strengthening of requirements for high school graduation, including the requirement of a core academic curriculum; the development and use of rigorous educational standards; more time in school or the more efficient use of presently available time; and better preparation of teachers (Gordon, Daggett, McCaslin, & de Moura Castro, n.d., Legislative History and Reforms Section, para. 7).

This educational reform has had a major impact on teacher preparation programs, teacher certification, professional development, curriculum and instruction, teacher recruitment, and teacher retention.

Prior to the mid-1980's, teachers traditionally earned certification by completing a bachelor's degree at a college or university (Feistritzer, 2009b; Sass, T.; 2011; Walsh &

Jacobs, 2007). Occasionally, teachers were permitted to teach on an emergency certificate, but this was very rare. As changes came about in society, educational systems were affected in a variety of ways. These changes led to teacher shortages in certain areas which created the need to offer Alternative Teacher Certification Programs (ATCP) which provided alternate routes to teacher certification. ATCPs were initially designed to improve the quality of the education workforce and alleviate teacher shortages by attracting people who already had a bachelor's degree. However, some critics believe ATCPs do not meet these objectives because they believe alternative certified teachers are not very effective (Darling-Hammond, 2001; Feistritzer, 2009b).

Today's schools employ teachers from two broad categories of certification: traditional teacher certification programs and alternative teacher certification programs. These programs are state-approved courses of study that may be offered through institutions of higher learning or through other agencies. Traditional teacher certification programs are offered at colleges/universities and "generally serve undergraduate students who have no prior teaching or work experience and lead to a bachelor's degree" (United States Department of Education, Office of Postsecondary Education, 2011, p. 8). Alternative teacher certification programs, sometimes referred to as alternative route teacher preparation programs, "primarily serve candidates that are the teacher of record in a classroom while participating in the route." (United States Department of Education, Office of Postsecondary Education, 2011, p. 8)

Alternative routes allow people such as career changers and those who have been out of the job market (e.g., stay-at-home mothers) and who hold at least a college degree to transition into teaching without the hardship of leaving the paid

workforce or the expense and possible redundancy of traditional teaching programs (United States Department of Education, Office of Innovation and Improvement, 2004, p. 4).

These programs can range from six weeks to two years. Because of the wide variety of programs, researchers have not been able to provide consistent data about the overall effectiveness of ATCPs. These programs began in New Jersey around 1986 and were more prevalent in urban areas. Currently, there are over 125 programs in all 50 states and the District of Columbia. These programs are administered through a variety of service providers that certify approximately 62,000 new teachers annually. *Alternative teacher certification: A state-by-state analysis* indicates that more than 1/3 of new teachers receive certification through alternative routes (Feistritzer, 2009a).

Career and Technical Education (CTE), which was formerly known as vocational education, is a specific area that has been affected by the educational reform movement as well as alternative teacher certification. Initially, vocational education served a single purpose: to prepare students to go into industry by providing specific trades and skills needed for the workforce (McCaslin & Parks, 2002; Sass & Bottoms, 2011). However, the changes that resulted from educational reform altered the expectations for CTE teachers. Presently, CTE educators are charged with the responsibility of preparing students for the dual purpose of post-secondary education as well as the workforce. Additionally, they are responsible for increasing the rigor of CTE programs as well as integrating academics into their curriculum (McCaslin & Parks, 2002).

Traditionally, CTE teacher preparation programs were available at the postsecondary level and led to bachelor's degrees in areas such as family and consumer

sciences and business education. These programs trained teachers how to integrate literacy and numeracy into the CTE curriculum and promoted the use of teaching strategies that actively engage students in instruction. The traditional teacher certification programs also taught pedagogical concepts. However, the decrease in postsecondary programs offering traditional teaching degrees in CTE subjects has resulted in fewer opportunities for CTE teachers to gain these skills which are essential in the classroom (Sass & Bottoms, 2011).

Currently, many CTE teachers at the secondary level (middle and high school) face difficult challenges that are unique to those who are recruited from the business world. First, unlike teachers who complete traditional teacher certification, they must have several years of work experience that qualify them to teach specific content. Second, often they do not have college degrees. Those who have college degrees typically do not have pedagogical training. In addition to these challenges, they often teach students with low academic ability and special needs (Levesque, Laird, & Hensely, 2008). CTE teachers who come from business and industry have the same expectations as those prepared in traditional teacher certification programs; however, there are limited opportunities for CTE teachers to receive adequate preparation that will prepare them to meet these expectations (Sass & Bottoms, 2011). These and other issues and challenges may have an impact on CTE teachers' decisions to enter and remain in the classroom.

Purpose and related research questions

South Carolina's CTE teachers are certified through three methods: traditional teacher certification through a college or university teacher preparation program, Program of Alternative Certification of Educators (PACE), and CTE work-based

experience certification. The study focused specifically on South Carolina's CTE teachers who obtained work-based certification. The purpose of this study was to examine South Carolina's work-based teacher certification program for beginning CTE teachers. This study determined the extent that South Carolina's program aligns with best practices of CTE teacher certification programs based on the literature. The study also gathered perceptions of teachers who completed the program. Finally, the researcher determined the retention rates for teachers who started the program between 2003-2004 and 2008-2009.

In order to examine South Carolina's work-based certification program, the researcher explored the following questions:

1. To what extent are best practices evident in South Carolina's CTE work-based certification program?
2. What are the perceptions of CTE work-based teachers who completed the certification program?
3. What are the first, second, and third year retention rates for South Carolina's beginning teachers who received CTE work-based certification from the years 2003-2004 through 2008-2009?
4. Do third year retention rates vary across content areas?
5. Do third year retention rates vary based on teachers' race and gender?

Significance of the Study

One of the main goals of education is to provide effective instruction that will help all students achieve success. This goal cannot be accomplished unless school leaders recruit and retain teachers who possess adequate knowledge and skills. Jorissen (2003)

stated that “preparing highly-qualified teachers who feel competent and who have a commitment to remain in teaching is an imperative that teacher educators and policy makers must continue to address (p. 51).” Researchers emphasize that retention is the problem—not recruitment (Brown & Wynn, 2007; Wynn, Carboni, & Patall, 2007).

National leaders have faced the challenge of retaining effective teachers for several decades. The National Center for Education Statistics (n.d.) showed the following retention rates for traditional certification routes for 2008-2009: 1-3 years experience—90.3%; 4-9 years experience—92%; 10-19 years experience—95.6%. These figures suggest that teachers leave at a higher rate during their first three years than between years 4-19. In other words, if teachers get to the fourth year, the chances of their having a long career in schools are much improved.

One component of teacher certification that could have a great impact on teacher retention is teacher induction. According to researchers, it could take about 3-7 years for beginning teachers to become effective as instructional leaders in their classrooms (Dillon, 2009). Induction can be defined as “a comprehensive, coherent, and sustained professional development process that is organized by a school district to train, support, and retain new teachers, which then seamlessly guides them into a lifelong learning program” (Portner, 2005, p. 43) When teachers have opportunities to work with colleagues, they learn about education as a career and become aware of day-to-day practices which can promote teacher retention (Carr, 2009; Dillon, 2009; Jorissen, 2002; Nieto, 2009). Therefore, induction into a collaborative school culture is important. Comprehensive induction programs are likely to retain good teachers and train them to be effective. These programs include a variety of components which may include but are not

limited to mentoring, professional development, opportunities to network with peers, and formal assessments (Dillon, 2009).

New teachers who are provided professional development, support, assessment and feedback are more likely to remain in the field of education longer than those who do not have the same opportunities (Joerger & Bremer, 2001). However, traditional induction programs assume the teacher is knowledgeable about pedagogy because these programs generally presume that teachers completed traditional teacher certification programs. Also, professional development in traditional induction programs typically focuses on jargon that is beyond the knowledge of teachers who enter the profession through alternate routes. These induction programs are not necessarily appropriate for alternatively certified teachers who are not familiar with educational terminology and procedures (Szuminski, 2003).

Induction programs for alternatively certified teachers should assist teachers as they move from other professions into a teaching career. A major challenge for these teachers is that they learn how to teach while “on the job.” Because of the unique needs of alternatively certified CTE teachers, educational leaders should provide high-quality induction programs that incorporate specific strategies to meet their needs. Failure to provide adequate training and support could result in teachers leaving the profession at a high rate.

This study is significant because teacher turnover may have an effect, positive or negative, on several factors in a school setting including student achievement, teacher satisfaction and morale, teacher effectiveness, and costs (Brown & Wynn, 2007; Darling-Hammond, 2003; Stockard & Lehman, 2004). The study addressed beginning CTE

teachers in South Carolina's who were certified through work-based certification which included a majority of program areas.

First, teacher retention may have an impact on the quality and sustainability of CTE programs which could impact student achievement. Low retention rates create hardships on school districts because they are constantly trying to rebuild their staff which consumes valuable resources and time. This trend could prevent schools from growing their programs to the point where they are solid and stable.

Second, low retention rates may have an impact on the cost of operating CTE programs. The National Commission on Teaching and America's Future (n.d.) estimated that approximately \$7.2 billion is spent on teacher turnover yearly. This estimate accounted for teachers who move out of a particular district; however, it did not include teachers who move within a district. In 2003 the Schools and Staffing Survey (National Center for Education Statistics, 2003) estimated the total cost of teacher turnover in South Carolina was approximately \$74.5 million. This enormous figure warrants further investigation into the rate and impact of teacher retention in South Carolina's career and technology programs.

Finally, limited data exist on the retention of CTE teachers. This study provided valuable information that can assist CTE leaders in making decisions about the future of their programs and will add to the scant research that already exists.

Limitations/Delimitations of the Study

This study was limited to beginning CTE teachers in South Carolina who received their initial certificate through the work-based route between 2003-2004 and 2008-2009. The data may not be generalized to represent the experience of CTE teachers who

completed other certification routes because the structure and components may be different. Additionally, since the study was limited to South Carolina, findings may not be consistent in other states.

Definition of Terms

Alternative routes to teacher certification or Alternative teacher certification program (ATCP): “State-defined routes through which an individual who already has at least a bachelor’s degree can obtain certification to teach without necessarily having to go back to college and complete a college, campus-based teacher education program” (National Center for Alternative Certification, 2010). Some states, including South Carolina, do not require a bachelor’s degree to become certified through alternative routes.

Career and technology (or technical) education (CTE): Previously referred to as “vocational education,” CTE can be defined as:

...organized educational activities that offer a sequence of courses that provides individuals with the academic and technical knowledge and skills the individuals need to prepare for further education and for careers in current or emerging employment sectors. Career and technical education includes competency-based applied learning that contributes to student’s academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills (Perkins Collaborative Resource Network, n.d.).

Retention rate: The number of teachers who remain in teaching compared to the total number of first-year teachers for a specified year.

Traditional route to teacher certification: The pathway to teacher certification that requires at least a 4-year degree in a teacher preparation program at a college or university.

Overview of this Study

First, this study analyzed the content of South Carolina's work-based teacher certification program to determine the alignment with best practices of CTE certification programs according to the literature. Second, the researcher examined perceptions of teachers who completed the certification program by conducting interviews. Third, this study determined the retention rates of work-based teachers who started between 2003-2004 and 2008-2009. The retention rates were determined by using data provided by the South Carolina Department of Education, Office of Career and Technical Education and the Office of Educator Quality.

The researcher begins with the literature review (Chapter 2) which provides an overview of the broad topic of alternative teacher certification and discusses the importance of teacher preparation. This is followed by a historical overview of career and technical education which explains some of the challenges associated with this area of teacher certification. The historical background will help the reader to understand specific terminology and concepts that are used throughout the literature review. The literature review continues with information about teacher preparation/certification and teacher retention. Finally, the researcher outlines specific supports that are necessary for new CTE teachers to be successful. An appendix is provided to inform the reader about South Carolina's work-based certification program.

CHAPTER 2

REVIEW OF THE LITERATURE

The purpose of this chapter is to present various aspects of teacher certification and teacher retention based on findings from educational literature. Teacher certification is a very broad topic that encompasses all levels from pre-school through post-secondary education. Teachers typically receive certification through traditional routes or alternative routes. This chapter will provide an overview of alternative routes to certification and will focus specifically on career and technical education (CTE). It will also include a historical review in an effort to provide the reader a thorough background of CTE. Finally, the chapter will address the topic of retention as it relates to teachers who receive certification through alternative routes.

Alternative Teacher Certification

“Alternative Teacher Certification Program” (ATCP) is a term that describes a very broad range of services which can range from six-week programs to two-year programs. Because of the wide variety of programs, researchers have not been able to provide consistent data about the overall effectiveness of ATCPs. These programs began in New Jersey around 1986 and were more prevalent in urban areas. However, there are currently over 125 programs in all 50 states, and over 600 program providers certify approximately 62,000 new teachers annually (Feistritzer, 2009a). *Alternative teacher certification: A state-by-state analysis* indicates that more than 1/3 of new teachers receive certification through alternative routes (Feistritzer, 2009a).

ATCPs are provided by colleges and universities, private agencies, and school districts. Most programs were created in response to teacher shortages which resulted from eliminating temporary teacher licenses and often occur in high-need areas such as science, math, and special education. They also address the need for diversity in terms of race and gender (Grossman & Loeb, 2008).

Components of Alternative Teacher Certification Programs

The researcher reviewed several studies and found that a variety of elements may be included in ATCPs. The most prevalent components were the inclusion of induction and mentoring. Programs also included teacher training in the academics and pedagogy, opportunities for field experiences, common planning time, collaboration with other teachers, networking opportunities, and university-school partnerships. According to educational literature, most alternative teacher certification programs employed people who were intelligent and knowledgeable in the subject area, came from different backgrounds, were committed to students, possessed post-baccalaureates degrees, were highly competent, and had inherent ability to teach. (Cleveland, 2003; Darling-Hammond & Baratz-Snowden, 2005; Humphrey, 2007; Jorissen, 2002, 2003; Keller, Brady, Duffy, Forgan, & Leach, 2008; Ng & Thomas, 2007; Scribner & Akiba 2009; Simmons, 2005). Although research cited the inclusion of induction and mentoring as components of ATCPs, only 21 of 105 alternative routes identified by the National Center for Career and Technical Education required teachers to participate in an induction or mentoring program (Zirkle, Martin, & McCaslin, 2007).

Researchers have identified several advantages of ATCPs. The most common advantages were that they provide real-world experience, and they address teacher

shortages. Other advantages were related to teachers' qualities: They are intelligent, find teaching rewarding, are committed to teaching, are not primarily focused on salary and other benefits, want to make a difference in children's lives, come from a variety of backgrounds, have better retention rates than traditional certified teachers, are more effective than traditional certified teachers, are knowledgeable of their content, have a specific skill set, and are enthusiastic about teaching (Cleveland, 2003; Humphrey, 2007; Scribner & Akiba, 2009; Simmons, 2005).

The following disadvantages were noted: lack of quality, few requirements for entry to the profession, lack of commitment, low retention rates, and no demographic diversity. Teachers are viewed as temporary workers, less prepared, young, and inexperienced. Studies also revealed that some ATCPs discriminate against minorities because they receive less effective preparation and more often work at the most challenging schools (Cleveland, 2003; Humphrey, 2007; Scribner & Akiba, 2009; Simmons, 2005). As noted, the results of this research were inconsistent because some characteristics that were viewed as strengths by advocates were indicated as weaknesses by opponents of ATCPs.

Teacher Preparation for ATCPs

The National Education Association (n.d.)

believes that all teachers entering the profession should be required to demonstrate subject matter competence, pedagogical skills, and teaching ability before entering the classroom as a teacher-of-record. Alternative route programs must maintain the same standards as other teacher preparation programs and must be equal in rigor and content (p. 4).

The main objective of ATCPs is to prepare teachers to be successful so they may deliver services that will improve student achievement. According to Simmons (2005), since candidates for ATCPs do not typically come from educational backgrounds, it is important for educational leaders to consider the teachers' prior experiences. Therefore, teacher preparation for alternative routes should include an orientation to education terminology and jargon. Jorissen (2003) supported the importance of adequate teacher preparation because developing teachers' competence could increase the chances of long-term commitment to the profession.

Investigation of NC TEACH, a lateral entry program to teacher certification, provided insight about the importance of preparing teachers for the classroom. A study showed that although teachers had college degrees, they did not have the pedagogical knowledge and appropriate courses to be successful. The study resulted in the following recommendations based on five themes:

- (1) Organization/Disorganization: use master teachers and instructors, utilize a full-time coordinator at each location, use curriculum from host site rather than NC TEACH, and standardize certification requirements to clarify expectations for teachers to be licensed;
- (2) Coursework: ensure the professor is knowledgeable about teaching at the middle and high school levels, offer courses during summer, use curriculum from host site, and offer opportunities to receive certification and/or a master's degree;
- (3) Support: provide full-time site coordinator, provide training on disciplinary procedures, emphasize effective time management, and discuss high-stakes testing;

- (4) Mentoring: provide full-time mentors with a 6:1 ratio; and
- (5) Time: discuss the time requirements; invite previous teachers to discuss the challenges involved in teaching; include time management in the coursework; and provide or recommend software for generating lesson plans, calculating grades, and performing other functions (Cleveland, 2003, Participant Recommendations section).

In a study for Public Agenda and the National Comprehensive Center for Teacher Quality, researchers surveyed alternatively certified teachers from Teach for America, Troops to Teachers, and New Teachers Project/Baltimore. They also surveyed new teachers from traditional routes to certification. Only half of the alternatively certified teachers indicated they felt prepared to teach compared to more than 80% who completed a traditional teacher preparation program. Fifty-four percent reported needing additional time to work with a classroom teacher during pre-service (Rochkind, Ott, Immerwahl, Doble, & Johnson, 2007).

In another study, 54% of alternatively certified teachers indicated they needed to spend more time with an experienced teacher prior to entering the classroom. Sixteen percent did not spend any time with an experienced teacher prior to starting their first job (Honawar, 2007).

Results from the Public Agenda and the National Comprehensive Center for Teacher Quality study indicated that alternative certified teachers had more negative experiences than traditional certified teachers in the following areas that relate to teacher preparation: administrative leadership and support on disciplinary issues, good support

and advice from colleagues, and good role models from cooperating teachers (Rochkind et al., 2007).

A specific area that employs teachers who complete alternative certification programs is career and technical education (CTE). In order to gain an understanding of CTE, the next section provides a historical review.

History of career and technical education

The origin of CTE, formerly known as vocational education, dates back to the time when families owned businesses that utilized skills passed down from previous generations. They provided products and services that were needed in the community. As America's economy began to grow, the economy shifted to an age of industrialization which required fathers to leave their family businesses to work in factories. The opportunity to pass their skills to the next generation was diminished. As manufacturing and production increased in the factories, it became evident that more skilled workers were needed. This created a need for a structured system of preparing skilled workers in America which led to the implementation of vocational education (Gordon, Daggett, & de Moura Castro, (n.d.); McCaslin & Parks, 2002).

The preparation of vocational teachers began in 1862 with the Morrill Act land grant college system that allowed individuals to be prepared in the areas of agriculture and the mechanical skills. The rapid growth of skilled workers led to the creation of organizations such as the National Association for the Promotion of Industrial Education and the Vocational Education Association of the Middle West which were geared toward preparing a skilled workforce. In 1917 the Smith-Hughes Act was established to provide funds for teacher preparation at the secondary level (middle and high school) in home

economics, agriculture, and trades and industry. This federal act was the first legislation that focused on vocational education in America's public high schools. This led to the expansion of vocational teacher preparation through the George-Deen Act of 1936 which included distributive education (currently known as marketing), George-Barden Act Amendments of 1956 for nursing and fishery, and Vocational Education Act of 1963 for business/office education (Gordon et al. (n.d.); McCaslin & Parks, 2002).

Vocational education was the topic of conversations by educators as well as governing bodies at various levels. There were mixed opinions about the purpose of vocational education. The administering board of the Smith-Hughes Act believed vocational teachers should be knowledgeable about their trades, but they believed that college courses were not necessary as part of the training of vocational teachers at the high school level. Everyone was not in agreement. Individuals, such as John Dewey (as cited McCaslin & Parks, 2002), believed all teachers should receive training in general education and content areas. Vocational teachers in the areas of agriculture, business, family and consumer sciences (formerly home economics), and marketing (formerly distributive education) were prepared based on this theory and historically received certification through traditional teacher preparation routes which required them to receive a college degree (Bottoms & McNally, 2005; Gordon et al.; Gray & Walter, 2001; McCaslin & Parks, 2002). However, trades and industry teachers typically did not have a college degree and were recruited directly from the industry (Gray & Walter, 2001).

During the past thirty years, the focus of vocational education has changed; thus, the name was changed to career and technical education or CTE. CTE teachers today face different expectations and demands that are intended to prepare students for the

challenges of the 21st century. Teachers serve as guidance counselors because they help with career choices and provide opportunities for them to be successful in an age of technological advancements. CTE teachers are responsible for integrating academic areas such as mathematics, science, and communications which require them to teach higher-level thinking and problem-solving skills as well as teamwork. Additionally, CTE are subjected to increasing levels of accountability due to legislation at various levels. (Bruening, Scanlon, Hodes, Dhital, Shao, & Liu, 2001; Joerger & Bremer, 2001; McCaslin & Parks, 2002). All of these demands have impacted the preparation of CTE teachers.

A major piece of legislation that changed CTE in the last three decades was the Carl D. Perkins Vocational Education Act of 1984 (Pub. L. 98-524), known as the Perkins Act. This act included two goals which emphasized to Congress that effective CTE programs were necessary to the future of America. The two interrelated goals were intended to prepare a well-trained work force and to prepare adults for job opportunities in CTE. As an amendment to the previous Act, in 1990 Congress passed the Carl D. Perkins Vocational and Applied Technology Education Act (Pub. L. 101-392, also known as Perkins II) (Gordon et al., (n.d.)).

In 1994 Congress passed the School-to-Work Opportunities Act (Pub. L. 103-239) which created the structure to train a highly skilled workforce through partnerships between employers and educators (Gordon et al., (n.d.)). This act focused on:

preparing students with the knowledge, skills, abilities, and information about occupations and the labor market that would help them make the transition from school to postschool employment through school-based and work-based

instructional components supported by a connecting activity's component. Key elements of STWOA included (a) collaborative partnerships, (b) integrated curriculum, (c) technological advances, (d) adaptable workers, (e) comprehensive career guidance, (f) work-based learning, and (g) a step-by-step approach (Gordon et al., (n.d.), Legislative History and Reforms section, para. 10)

The Perkins Act was reauthorized in 1998 (Perkins III) and 2006 (Perkins IV) and strengthened the focus of improving academic skills (Gordon et al., (n.d.); United States Department of Education, Office of Vocational and Adult Education, 2008). Every institution that receives federal funds under Perkins IV must provide at least one CTE program that “includes rigorous career and technical content aligned with challenging academic standards and leads to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree (P.L. 109-270. Sec. 122[c][1])” (Sass & Bottoms, 2011, p. 1). Secondary-level CTE teachers, which include teachers at middle and high schools, have had to increase its emphasis on preparing students for postsecondary education.

The Perkins IV legislation contains performance indicators for CTE programs with the first being student attainment of rigorous academic standards that are aligned with No Child Left Behind (Sec 13[B][2][A][1]) (Sass & Bottoms, 2011; United States Department of Education, Office of Vocational and Adult Education, 2008). The Perkins IV legislation also increased teachers’ accountability for student achievement (Gordon et al. (n.d.); Sass & Bottoms, 2011; United States Department of Education, Office of Vocational and Adult Education, 2008). These occurrences over the past century have led

to modern-day CTE which produces many teachers and serves millions of students throughout America.

CTE teacher preparation/certification

For many years, some CTE teachers have been prepared quite differently than academic teachers because they have been required to have experience in their trade or craft. Additionally, some of them were allowed to teach with only a high school diploma (Gray & Walter, 2001). With educational reform and increased accountability, teachers must prepare students with higher levels of thinking skills, academic skills, and technical proficiency. Therefore, it is important that CTE teachers go through a certification process that includes professional development and coursework designed to prepare them for classrooms of the 21st century. CTE teachers must receive high quality training that not only prepares them in their content area but also teaches pedagogy that will help equip students with high levels of technical and academic skills that will improve the quality of the workforce and will help the nation to become more economically competitive (Bruening et al., 2001; McCaslin & Parks, 2002; Sass & Bottoms, 2011; National Association of State Directors of Career Technical Education Consortium, 2010).

Research indicated that the requirements for CTE teacher certification varied from one state to the next and even within states. Moreover, the requirements were quite different for CTE teachers who went through the traditional route versus those who went through alternate routes (Zirkle, Martin, & McCaslin, 2007). The majority of CTE teachers in the areas of business, technology, agriculture, family and consumer sciences, and marketing education completed the traditional four-year baccalaureate model

typically used for elementary, middle school, and high school teachers (Gray & Walter, 2001; Zirkle, et al., 2007). State requirements for traditionally prepared CTE teachers generally included several components. First, these teachers needed at least a bachelor's degree. Requirements for a bachelor's degree varied from state to state. Variations included a bachelor degree in education, major in a specific area, and major in any area with completion of a teacher preparation program. Second, these teachers were required to complete a teacher preparation program. Third, traditionally prepared CTE teachers were required to pass an entrance or exit exam that tested their academic skills and knowledge of teaching principles as well as knowledge of their content area and the ability to perform in those areas (Zirkle, et al., 2007; Southern Regional Education Board (SREB), 2012).

Teacher preparation is quite different for trade and industrial education and health occupations. These areas typically use an alternative preparation/certification model that stresses work experience and occupational competence over academic credits completed and degrees earned. Although a majority of health occupations teachers have degrees and most newly hired trades and industry teachers typically have at least an associate degree, the degrees are not necessarily required for entry into the teaching profession (de Moura Castro, (n.d.); Gray & Walter, 2001; Joerger & Bremer, 2001; Zirkle et al., 2007). Some states have additional requirements such as peer reviews, portfolios, and/or current employment or offers for employment within the state (Zirkle et al., 2007).

South Carolina provides two routes to alternative certification for CTE teachers. The Program of Alternative Certification for Educators (PACE) is for teachers of agriculture, business education, family and consumer sciences, and industrial technology.

The Work-Based Certification Program is for all other CTE content areas (See Appendix A for a description for the work-based program).

Teacher Induction

Teacher induction is an important component of teacher certification programs. Induction can be defined as “a comprehensive, coherent, and sustained professional development process that is organized by a school district to train, support, and retain new teachers, which then seamlessly guides them into a lifelong learning program” (Portner, 2005, p. 43). Sun (2012, p. 5) states that:

The overarching goal of a comprehensive induction program should be developing and supporting new teachers so they are more effective and make a smooth transition into the teaching profession. If states and districts are able to achieve this goal, related outcomes such as improved student achievement and reduced teacher turnover rates will follow.

According to Dillon (2009), it takes about 3-7 years for new teachers to become effective instructional leaders. Claycomb and Hawley (as cited in Sun, 2012, p. 4) found “it can take up to five years for a teacher to become fully proficient and able to maximize student achievement.” It is crucial that teachers become inducted into a school culture that provides collaboration among professionals. When teachers have opportunities to work with colleagues, they are allowed to grow and learn from veterans who are successful in the field of education which encourages teacher retention (Carr, 2009; Dillon, 2009; Jorissen, 2002; Nieto, 2009).

Comprehensive induction programs include a variety of components which may include but are not limited to mentoring, training, peer networking, support from

administration, socialization, time to collaborate with other teachers, and formal assessments (Dillon, 2009; Ingersoll & Kralik, 2004). Research showed that mentoring is the most common component of induction programs. “But while mentoring is an important component of an induction program, comprehensive induction is much more than pairing a new teacher with a veteran one for a specified period of time” (Sun, 2012, p. 5). Induction and mentoring are not synonymous.

Ingersoll and Kralik (2004) emphasized that teacher induction is not necessarily the same as preservice and inservice training programs.

“Preservice refers to the training and preparation candidates receive prior to employment (including clinical training such as student teaching). Inservice refers to periodic upgrading and additional training received on the job, during employment. Theoretically, induction programs are not additional training per se, but are designed for those who have already completed basic training. These programs are often conceived as a ‘bridge’ from student of teaching to teacher of students” (Ingersoll & Kralik, 2004, p. 3).

Sun (2012) identified several elements as vital factors in induction programs. They included: “multi-year support for new teachers lasting at least two years, high-quality mentoring utilizing carefully selected and well-prepared mentors, regularly scheduled common planning time with other teachers, ongoing professional development, and standards-based evaluation of new teachers throughout the process” (p. 5).

The American Federation of Teachers (2001) identified five characteristics of induction statutes that led to successful induction programs:

- All new teachers were included.

- The induction program continued at least one year.
- All new teachers were paired with qualified mentors.
- New teachers had lighter teaching loads.
- A summative review was conducted at the end of the program.

The National Education Association (n.d.) supports policies that provided comprehensive induction for beginning teachers. These experiences should be designed specifically to the needs and circumstances of the school, district, and state. The National Education Association supports:

- instituting formal systems of comprehensive teacher induction for at least the first two years of teaching, under the supervision of experienced and/or accomplished teacher-mentors;
- creation of incentive grants to districts to develop peer assistance programs that focus on the improvement of staff knowledge and skills;
- providing new teachers with a reduced course load and/or less demanding classroom/school assignments that permit them to participate in organized professional development, induction activities, and planning during the school day;
- regularly assessing new teachers' classroom performance and basing their professional learning directly on the results of this assessment;
- increasing training, accountability, and support for school administrators, particularly in schools/districts with high teacher turnover; and
- implementing policies and providing funding to improve significantly the teaching and learning conditions in schools/districts with high teacher

turnover. These conditions include class size, physical infrastructure, teacher input into school policies, and school safety (New Teacher Support, Induction, and Retention section, para. 2).

Smith and Ingersoll (as cited in Alliance for Excellent Education, 2011) reported that comprehensive induction combined:

- “high-quality mentoring with rigorous mentor selection criteria;
- common planning time for regular scheduled interaction with other teachers;
- participation in seminars and intense professional development; and
- ongoing communication and support from school leaders” (Comprehensive Induction section).

Bach, Natale, Walsh, & Weathers (n.d.) identified the following components of comprehensive induction:

- structured mentoring from carefully selected teachers who work in the same subject area, are trained to coach new teachers, and can help improve the teacher’s practice;
- common planning time for new teachers to collaborate with their mentors, other teachers, and school leaders across all levels of experience;
- intensive professional development activities for new teachers that result in improved teaching that leads to student achievement;
- participation in a network of other teachers outside the local school; and
- standards-based assessment and evaluation of every beginning teacher to determine whether he or she should move forward in the teaching profession (p. 11).

Fulton, Yoon, & Lee (2005) identified the following components of systemic teacher induction in the development of 21st century learning communities:

- orientation to and support of the educational community;
- development of teaching skills;
- shared expertise of professional;
- two- to three-year probationary;
- partnerships between various entities such as districts, unions, and teacher preparation programs;
- careful selection of and continuous training for mentors;
- structured time, incentives, and clear expectations for mentors;
- opportunities to observe and be observed by other teachers;
- opportunities for self-assessment and reflection;
- assessment and evaluation of beginning teachers;
- reduced workload and less challenging teaching assignment for beginning teachers;
- reduced workload for mentors;
- development of external supports; and
- impact (p. 5).

It is evident through the research that comprehensive induction programs may contain a variety of elements that provide essential support to help teachers become effective.

Induction for Alternatively Certified Teachers

Typical induction programs tend to focus on basic educational skills such as developing lesson plans, obtaining resources, and classroom management (Ingersoll &

Kralik, 2004). Additionally, assistance for new teachers generally includes help with instructional strategies and student motivation which are usually covered during training sessions on pedagogy (Joerger & Bremer, 2001; Portner, 2005). Traditional induction programs provide support, assessment and feedback, professional development, and knowledge about education as a profession (Ingersoll & Kralik, 2004; Joerger & Bremer, 2001). However, traditional induction programs assume the teacher is knowledgeable about basic terminology and other basic pedagogy that were learned in the teacher preparation program. These programs are not necessarily appropriate for alternatively certified teachers who are not familiar with educational terminology and procedures (Szuminski, 2003).

Induction programs for alternatively certified teachers should go beyond the basics to include unique strategies that address the needs of teachers which would support their effectiveness and commitment to teaching. These programs should assist teachers as they move from other professions into a teaching career (Joerger & Bremer, 2001). Alternative certified teachers need even more assistance—and different types of assistance—than teachers who complete a traditional teacher preparation program.

Elements of induction programs for CTE teachers should include “ongoing personal support, assessment and feedback on teaching performance and progress, continuing education opportunities that meet current needs, and positive socialization into the profession” (Joerger & Bremer, 2001, p. 7). At the beginning of their first year of teaching, alternatively certified CTE teachers specifically need:

- a mentor in the same or related instruction area and a support group;

- curriculum, identification of resources, a record of helpful tips, and instructional materials from the previous instructors,
- an orientation to career and technical student organizations;
- orientation to system workings, policies, and procedures;
- more preparation time before the beginning of courses; and
- access to a variety of workshops when needed (Joerger & Bremer, 2001, p. 12).

New CTE teachers even need help with issues dealing with equipment and laboratories and establishing community partnerships (Joerger & Bremer, 2001).

SREB data indicated that as much as 75% of beginning CTE teachers comes from industry through alternative certification programs which include very minimal classroom teaching strategies (SREB, n.d.). The Missouri Center for Career Education (as cited in Cochran & Reese, 2007) developed the New Teacher Institute, an induction program that provides two years of mentoring support for new CTE teachers. It assists professionals who enter the field of education from industry and lack a college degree in education. The yearlong program develops pedagogical skills, provides resources, and generates a supportive network of professionals. In addition to providing mentors, the program also utilizes experts from various content areas such as trade and industrial education that assist in successful implementation of the program. The second year of the New Teacher Institute is geared toward classroom instruction and professionalism as well as improving activities from the first year. Teachers have opportunities to participate in activities that are specific to individual content areas.

The Southern Regional Education Board (n.d.) in collaboration with the NRCCTE devised an induction model for new CTE teachers who are seeking teacher certification through alternative routes. The model includes a professional development component and a support component. Professional development modules include instructional planning and strategies as well as classroom assessment and management. The support elements of the new program include assistance from trained coaches, on-site mentor/administrator, and electronic learning community. This model, which was referred to as “the most comprehensive and successful model available today for strengthening the CTE teacher induction experience,” (Bottoms, Egelson, Sass, & Uhn, 2013, p. 54) can be used by states, teacher preparation programs, and school districts to improve teacher quality.

Teacher Mentoring

The term “mentoring” is sometimes used synonymously with “induction” which is not correct. Mentoring is one of the most important components of an induction program, but is not the only component. The basic function of a mentor is to devote time and effort toward helping a new teacher (Portner, 2005). Mentoring should be helpful and should provide opportunities for beginning teachers to work closely with experienced colleagues as they gain confidence to stand on their own (Mihans, 2008).

Mentors need to be successful teachers who can be supportive and encouraging to new teachers. They need to be empathetic, honest, and sensitive to the personal, professional, and instructional needs of the new teacher. On-going training will help ensure that mentors will be effective on a continual basis (Joerger & Bremer, 2001, p. 31).

Joerger & Bremer (2001) stated that mentors need to be a source of encouragement and support for new teachers. Research revealed several desired qualities of mentors: models exemplary teaching, communicates well, builds trusting relationships, possesses instructional leadership skills, provides opportunities for reflection, is willing to listen, and provides emotional support (Billingsley, 2005; Brown, 2003; Schlichte, Yssel, & Merbler, 2005).

Hicks, Glasgow & McNary (2005) identified several research-based strategies that are important for mentors to use when supporting new teachers. Mentors should support them as they work with students; develop discipline policies; plan curriculum and pedagogy; plan assessments; implement instructional strategies; develop plans for assisting students with special needs and diverse backgrounds; implement technology integration; and establish effective parent/community relationships.

A review of research studies revealed that we lack sufficient data in the area of teacher mentoring in alternative teacher certification programs. Nevertheless, researchers made several recommendations to improve the quality of preparation for teachers who choose alternative routes. According to Wayman, Foster, Mantle-Bromley and Wilson (2003), education leaders in ATCPs need to offer useful preparation programs before entering the classroom. The researchers emphasized that leaders need strong mentoring programs as part of teachers' preparation. Simmons (2005) also stressed that mentoring is vital particularly in ATCPs because these teachers do not participate in student teaching experiences. Although there is limited research in the area of alternative teacher certification, particularly CTE, several research studies have provided opportunities for teachers and principals to give feedback about their certification programs.

Briggs (2008) conducted a study of the perceptions of alternatively certified CTE teachers regarding mentoring and preparation activities received during their first year of teaching. Teachers reported that they appreciated a summer workshop which was conducted before their first year as well as additional sessions related to classroom instruction, classroom and lab management, and making presentations. They also valued visits from course instructors that occurred prior to their first year and indicated they would benefit from a greater number of visits. Findings from the study described the topics related to mentoring that were most helpful: “planning, time management, student assessment, ways to prevent teacher burnout, how to deal with classroom management issues, and working with political and cultural make-up of their individual school buildings and school districts” (p. 13). Teachers reported that mentoring was most useful when they met with mentors regularly, when the mentor taught in a similar subject area, when duplication of university coursework and mentoring materials was reduced, and when paperwork was reduced.

In 2003 Jorissen conducted a study to receive feedback from teachers who indicated that it was crucial for ATCPs to have an effective mentoring component. Teachers believed their mentoring experience provided essential feedback, enhanced personal and professional progress, contributed to their effectiveness as a teacher, and promoted an effective classroom culture. Additionally, teachers formed positive relationships with mentors. Similar perceptions were evident in other research studies such as one conducted by Smith and Ingersoll (2004). They reported that teachers who had mentors in the same subject area and who collaborated with other teachers were more likely to stay in teaching after their first year.

Teacher Retention for Alternative Certification Teachers

One of the challenges facing education is teacher retention. Data from the National Commission on Teaching and America's Future (NCTAF) indicated that the annual retention rate for teachers from all certification routes was 84.3% compared to 89% for other occupations. According to the NCTAF (n.d.), the average teacher had fifteen years experience in 1987-88. However, by 2007-08 the typical teacher had only one to two years of experience. During the 2007-08 school year, 79% of teachers in South Carolina had just one year experience while only 28% had fifteen years experience (NCTAF, n.d.). Data from an earlier study revealed the following retention rates for beginning teachers: 1st year—86%; 2nd year—75.6%; 3rd year—67.4%; 4th year—59.6%; and 5th year—53.8%. These cumulative figures referred to teachers from all certification routes. (National Center for Education Statistics as cited in Ingersoll, 2002).

There are currently insufficient data on long-term retention rates for alternative certified teachers. Although some studies have been conducted to determine the impact of certification route on student achievement, there are little data that indicate a relationship between certification route and teacher retention rates (Sander, 2007).

One of the most widely recognized ATCPs is New York City Teaching Fellows which has certified approximately 8,500 teachers. This represents about 11% of all teachers in New York City. Data showed that approximately 92% of entrants completed the first year of the program; 75% taught at least three years; over 50% taught at least 5 years (New York City Teaching Fellows, 2012). Another well-known program is Troops to Teachers. Research showed that 78% of teachers who completed the program planned to remain in the profession in five years (Feistritzer & Haar, 2005). This difference indicates that teacher retention data are inconsistent for alternate certification programs.

Why teachers stay in the profession

Various research studies have been conducted in an effort to determine the types of things that influence teachers' decisions to remain in the profession. The most common factors were teachers' salaries, working conditions, teacher preparation, support from administration, autonomy, and support from mentors (Mihans, 2008; Ng & Peter, 2010).

A study of approximately 500 teachers indicated that demographics had some effects on teacher retention (Stockard & Lehman, 2004). Another study by Easley (2006) reported that demographics were not significant in the retention of alternative certified teachers at Mercer College. According to Margolis (2008), gender may be a factor in teachers' next career move within the field of education. More often males plan to move from teaching into administration; whereas, females choose to remain in the classroom.

Another area that may affect retention is satisfaction. Data retrieved from the Inter-University Political and Social Research at University of Michigan dealt with factors that influence satisfaction and retention of first year teachers. This study was done with public school teachers (not necessarily alternatively certified teachers). Most first year teachers reported that they were satisfied with their job; over 50% would enter the teaching profession again; 45% of teachers transferred to different schools, and 17% changed professions. In a statewide sample, a larger number of younger people planned to leave the profession than older people; in the national sample men and non-Hispanic Whites were more apt to leave. The results revealed that support and school administration had little direct effect on retention; teacher satisfaction had the most significant impact on retention (Stockard & Lehman, 2004).

A synthesis of several research studies returned the following results about reasons why teachers stay in teaching: leadership (cited most often); mentors; support from administrators and teachers; efficient class size; monetary rewards; student success; training in classroom management, instructional strategies, discipline, and safety; collaboration with other teachers; integration into a professional culture; emotional and personal ties to students; personal characteristic; quality of teacher education; opportunities for growth; and moral ideals (Atwell, 2008; Buchanan, Bleicher, Behshid, Evans & Ngarupe, 2007; Costigan, 2005; Easley, 2006; Jorissen, 2002; Justice, Greiner & Anderson, 2003; Margolis, 2008).

A study of alternative certified teachers in New Jersey provided data about retention. Nagy (2007) reported that about 88% of alternative certified teachers that started in the spring said they would stay in the profession; 90% of those who began in the summer said they would stay in the profession; 79% of teachers who started in the winter said they would continue. The results of the study indicated that the highest percentages of teachers that would remain represented teachers who had less than two years experience or more than six years, and 13% of all teachers surveyed would change professions. Principal support played a role in teachers' decisions. Ninety percent of teachers who reported they were very satisfied with principal support said they would remain; 89% of teachers who indicated they were moderately satisfied would stay. The study revealed that assistance from the principal and mentor was the best gauge of teacher satisfaction which impacted their decision to stay in education. SREB (2012) found that "CTE teachers who are well trained and supported in entering the teaching

profession are more likely to remain in the field and build their teaching skills over time, resulting in a better trained teaching force.”

Why teachers leave the profession

Review of research studies revealed several factors that cause teachers to leave the profession: lack of autonomy; increased accountability; low salaries; lack of parent support; apathy; low morale; lack of motivation, classroom discipline, and training; poor working conditions; limited autonomy; poor benefits; lack of career growth; stress; and lack of feeling rewarded (Costigan, 2005; Justice et al., 2003; Margolis, 2008).

A study of new CTE construction teachers revealed that teachers who stayed after their first year believed low salaries was the number one issue that caused teachers to leave; however, the teachers who left felt that salary was not important at all in their decision. The stayers reported concerns with student discipline and poor administrative support. Moreover, the leavers had additional concerns about challenges with special needs students and students with lack of motivation (McCandless & Sauer, 2010).

Of the research that was reviewed, two of the most common reasons for leaving the profession were lack of autonomy and increased accountability. A study of New York Teaching Fellows that was conducted by Arthur Costigan (as cited in Dangel & Guyton, 2005) followed a group of Fellows for three years. Although most of the teachers were sincerely interested in teaching, they were very limited in their ability to develop and implement an innovative curriculum because they were constrained by state-mandated standards that did not meet the needs of their students. They felt that the red tape of public education hindered their professional growth as a teacher and decreased opportunities for students to be successful.

A survey of 88 teachers in South Carolina cited administrative problems as the most common reason for exiting the profession. Respondents' reasons for this response ranged from not maintaining effective discipline policies to lack of consistent decision making. Other reasons included failure to provide needed resources, lack of supervision, and lack of visibility (Eggen, 2001).

Because there are very limited data on retention and alternative teacher certification, particularly in CTE, it is recommended that researchers conduct extensive studies that will assist educational leaders in making decisions about the future of ATCPs. Justice et al. (2003) reported that leaders should conduct interviews with current and former teachers to find out why they remain or leave the profession. Jorissen (2002) and Margolis (2008) indicated that school leaders should develop pre-service and induction programs which provide opportunities for collegial relationships among professionals within the organization. They recommended additional studies to determine the relationship between teacher satisfaction and teacher retention.

The Teacher Quality Task Force established by ACTE offered several recommendations to address teacher quality and retention issues:

- Create a system of reciprocity for teaching certificates across state lines.
- Re-examine licensing requirements to ensure they are not a barrier.
- Articulate two-year and four-year higher education programs.
- Improve and increase professional development.
- Develop stronger induction and mentoring programs.
- Emphasize the importance of CTE courses to the curriculum.
- Work to reopen formal teacher education programs.

- Increase teacher salaries and money to support programs.
- Provide grants to teachers for externships in business and industry.
- Make it easier and more lucrative for businesses to donate expertise and resources to education (DeWitt, 2010, p. 13).

These recommendations may be useful in assisting CTE leaders with teacher retention.

Impact of induction and mentoring on teacher retention

The United States Department of Education's report *Eliminating Barriers to Improving Teaching* (2000) found that attrition rates of first-year teachers may be reduced by up to two-thirds if teachers participate in a formal first-year induction program that includes mentoring. Studies revealed mixed results about the impact of mentoring on teacher retention which indicated that further investigation is needed in this area. A review of several studies supported the claim that assistance for new teachers – and in particular, teacher mentoring programs – have a positive impact on teachers and their retention. However, there were limitations because of factors that could not be controlled (Ingersoll & Kralik, 2004). The results of another study that examined beginning teachers' perceptions of leadership, mentoring, and climate revealed no direct relationship between mentoring and teacher retention (Wynn et al., 2007).

A study of new teachers was conducted to determine the effect of comprehensive teacher induction on the teacher retention. The findings indicated the treatment group received more induction support; however, additional supports did not necessarily have positive impacts on important outcomes after the first year of implementation. The teachers more often had a formal mentor, spent more time in meetings with a mentor, received help in classroom management more frequently, received opportunities to

review student work, and were able to communicate with parents. Despite the aforementioned activities, there were no positive impacts on teacher retention (Isenberg, Glazeman, Bleeker, Johnson, Lugo-Gil, Grider, Dolfin & Britton, 2009).

Another study was conducted of 167 New York City Mathematics Teaching Fellows (NYCMTF) in their first and second year of teaching math in grades 5-12. Teachers were recruited and trained to teach in middle and high schools that were typically hard to staff. The study was designed to address mentoring because it was identified as the most critical on-site support. The study examined several factors which included math instruction, standards, and demographics of students as they related to math teacher recruitment and retention in areas with the greatest need. The study identified expected areas of support for appropriate mentoring as well as actual support that was provided. Mentors and supervisors were expected to provide:

- consultation with college-level program faculty, school district personnel and candidates regarding teaching load,
- daily mentoring during the first 8 weeks,
- time to meet with mentor,
- plan for continual mentoring,
- monthly observations and meetings with college faculty, and
- ongoing support by college program faculty (Foote, Brantlinger, Haydar, Smith & Gonzales, 2010, p. 406).

However, the actual support that beginning teachers received revealed the following:

- Mentoring rarely met state and local standards.
- Sufficient time was not provided for mentoring activities.

- Mathematics Teaching Fellows were unable to identify mentors by name or explain mentor's roles.
- There was lack of coherence between NYCDOE (New York City Department of Education) and university mentors for Teaching Fellows.
- School personnel had multiple roles and did not provide necessary and consistent support.
- Three out of ten Teaching Fellows had no Department of Education mentoring during their first year.
- Only three out of ten Teaching Fellows were observed weekly by mentor and often did not include full-lesson observations.
- One out of four had a full-lesson observation on a semi-monthly or weekly basis.
- Focus and quality of the mentoring by the Department of Education varied greatly.
- Nineteen Teaching Fellows received no help from mentor.
- Few did not receive mentoring until 2nd semester.
- Feedback was not always helpful.
- Eighty percent received significant mentoring from someone other than Department of Education mentor (Foote, et al., 2010, p. 410-413).

Many teachers stated that the mentoring program focused more heavily on moral and emotional support rather than instructional support. Unfortunately, the program did not have enough mentors to meet NYCTF demand, and New York did not continue to fund new teacher mentoring. The results of this study concluded that poorly-designed

programs which are intended to provide support for new teachers could have a negative impact on retention as well as ability to teach math. Although the study did not return positive results, researchers concluded that induction for alternative certified teachers is important for practical and theoretical experiences (Foote et al., 2010).

Hayes (2006) conducted a study to examine the effects of a mentoring program on the retention rate of beginning teachers. A partnership between the Raytheon Teaching Fellows Program and Wichita State University included math and science teachers from two different programs—a traditional teacher certification program and an alternative teacher certification program. The results of the study indicated that 99.9% of the fellows were still in the program after three years. By providing experienced teachers as mentors, beginning teachers improved communication, professional development, and self confidence which can encourage teacher retention (Hayes, 2006).

Briggs and Zirkle (2009) stated that many mentoring and induction programs are poorly designed and lack “practical and research-based topics for new CTE teachers” (p. 3). Therefore, further research is needed to inform the field about the specific induction activities that will ultimately result in improved teacher performance and career commitment (Briggs & Zirkle, 2009). While current research does not yet provide definitive evidence of the value of mentoring programs in keeping new teachers from leaving the profession, it does reveal that there is enough promise to warrant significant further investigation (Ingersoll & Kralik, 2004).

A new induction program designed by SREB in collaboration with NRCCTE found that teachers who met with their mentor on a regular basis felt a greater level of support which led to teachers remaining in the profession. The implementation of the

program resulted in 70% of new teachers remaining in teaching after the first year, and 89% returned after the second year. These teachers made a commitment to stay in the education profession for the next five years (Bottoms et al., 2013).

CTE Teacher shortages

As stated earlier, the Perkins IV legislation increased the requirements and expectations for CTE teachers. Another initiative that has affected CTE is Common Core State Standards which is an initiative coordinated by the National Governors Association Center for Best Practices and the Council of Chief State School Officers (2010). This state-led effort was “developed in collaboration with teachers, school administrators, and experts, to provide a clear and consistent framework to prepare our children for college and the workforce.”

These changes have made it increasingly difficult to find teachers who possess the technical knowledge and skills as well as the academic competence to teach certain CTE classes. This shift caused concern for state CTE directors which prompted the National Association of State Directors of Career Technical Education Consortium (NASDCTEC) to publish *Teacher Shortage Undermines CTE*. This publication discussed the problems that schools face when seeking qualified CTE teachers and identified three key factors that contribute to the teacher shortage: increase in CTE course enrollments, the decrease in four-year teacher preparation programs, and the increasing number of teachers approaching retirement age (NASDCTEC, 2009).

The primary reason for increased student enrollment in CTE is the increase in the number of high school students who were born to parents of the baby-boom era (Sass & Bottoms, 2011). A variety of national surveys indicated that nearly all students enroll in

at least one CTE course and approximately 20% take several courses (Levesque et al., 2008). In 2006-2007 the Office of Vocational and Adult Education at the United States Department of Education (2008) reported that over 15 million students were enrolled in CTE courses at the high school and postsecondary levels. This represented an increase of almost 6 million students in only seven years. The National Center for Education Statistics (NCES, 2008) reported that in 2005 approximately 22% of high school graduates completed three or more credits in CTE and 97% completed at least one credit. Ninety-four percent completed at least one CTE credit in 2009 (NCES, 2011).

Although America's schools have increased academic requirements in the past twenty years, data indicated that enrollment in CTE courses has remained steady. As high school enrollment increases, CTE enrollment also increases which could contribute to teacher shortages (Sass & Bottoms, 2011; USDOE, 2008).

While the demand for CTE courses increased, there are fewer teachers to teach them. One contributing factor is the declining number of colleges and universities that offer teacher preparation in CTE programs (Bruening et al. 2001; Kiker & Emeagawali, 2010). The ACTE Teacher Quality Task Force also noted that one of the major issues affecting the shortage of CTE teachers is that the number and size of traditional university CTE teacher preparation programs have decreased (DeWitt, 2010). The National Research Center for Career and Technical Education (NRCCTE) reported the number of CTE teacher preparation programs dropped from 432 to 385—an 11% decrease—between 1990 and 2000 (Bruening et al., 2001).

Data from the South Carolina Commission on Higher Education (2010) showed that only four CTE teacher preparation programs existed at the college level in South

Carolina: Agricultural Teacher Education at Clemson University, Business Education at South Carolina State University and Winthrop University, Family and Consumer Sciences at Winthrop University, and Industrial Technology Education at South Carolina State University. Further investigation of each institution by the researcher revealed that a teaching degree in Family and Consumer Sciences no longer existed (Winthrop University, 2013).

Another factor that may add to the teacher shortage is the increasing number of teacher retirements. In 2010 more than one-third of all teachers in South Carolina who left retired from the profession (Center for Educator Recruitment, Retention, and Advancement, 2010). In 2009, the National Commission on Teaching and America's Future (NCTAF) estimated that America could lose about 1/3 of our most experienced teachers to retirement in the next four years (Carroll, 2008). The NCTAF (n.d.) reported that 300,000 veteran teachers retired between 2004 and 2008. This led to a tremendous decrease in experience in the classroom. In 1987-88 the typical teacher had about 15 years of teaching experience, but by 2007-08 the typical teacher had only 1 to 2 years of experience (NCTAF, 2009).

Feistritzer (2011) indicated that the number of teachers with 5 or fewer years experience increased from 18% in 2005 to 26% in 2011. However, the number of teachers with 25 or more years experience decreased from 27% in 2005 to 17% in 2011. She also noted that retirees were being replaced by teachers who came through alternative routes to certification. In 2011 data showed that for teachers with more than 25 years experience, 95% came through traditional routes to certification. However, for teachers with 5 or fewer years experience, 39% completed alternative routes.

In recent years, researchers noted an increase in the number of CTE teachers with alternative certification which may be another indicator of a shortage in the number of CTE teachers. Alternative certification has been the main pathway of entering the teaching profession in some CTE areas like construction, health, and mechanical trades. Additionally, alternative certification has increased in CTE areas such as business education and agriculture which were previously held by graduates of four-year teacher preparation programs (Sass & Bottoms, 2011). It is difficult to estimate the number of alternatively CTE teachers at the national level. However, Bottoms and McNally (2005) (as cited in Sass & Bottoms, 2011) conducted a survey of 12,000 teachers who were hired between 2000 and 2004 in 30 states in the High Schools That Work network and found that only 25% graduated from teacher preparation programs. They concluded that most of the teachers came through alternative routes.

The NASDCTEC (2010) published a four-part analysis of trends in CTE based on data collected from a survey of all state directors. One of these analyses focused on the shortage of CTE teachers in the 16 career cluster areas. The areas with the largest shortages at the secondary level were in STEM (Science, Technology, Engineering, and Mathematics); Health; Manufacturing; Agriculture, Food, and Natural Resources; and Architecture and Construction.

Support Needed for CTE Teachers

Research showed that up to 75% of beginning CTE teachers enter the profession from industry and receive little to no teacher preparation (SREB, n.d.) It is evident in the research that CTE teachers, especially those who are certified through alternative routes, need additional support. Teachers who enter the field through alternative routes often do

not receive traditional pedagogical training and may lack the skills and knowledge that are required to handle discipline problems, manage the classroom, provide instruction for students with special needs, challenge gifted students, and deliver personalized instruction. In the field of education, many teachers have high expectations when they begin teaching. However, many alternative certified teachers struggle to meet the demands that come along with the job (Honawar, 2007).

HSTW has conducted many surveys and research projects and has found that the majority of new CTE teachers have not completed a traditional, four-year teacher education program. This creates the need to provide support and preparation in all areas of pedagogy. An SREB project that was developed through NRCCTE includes an induction model that provides essential training which includes mentoring, coaching, guidance from school administrators, and an electronic network of practice (Sass & Bottoms, 2011).

The needs of beginning CTE teachers are similar to those of beginning secondary teachers in general which include skills in classroom management, instructional strategies, motivating students, and time/resource management skills (Joerger & Bremer, 2001). Additional assistance for new CTE teachers should include a mentor in a similar content area, orientation to career and technology student organizations, helpful materials from previous instructor, orientation to school/district policies, access to professional development, and adequate preparation time before entering the classroom. Similar to these areas, alternative route CTE teachers surveyed at High Schools That Work sites indicated the need for professional development in four instructional categories: “instructional planning, instructional strategies, classroom assessment, and classroom

management” (Sass & Bottoms, 2011, p. 15). Teachers reported the need to learn strategies for teaching through cooperative learning, differentiated learning, and applied learning techniques.

Ruhland and Bremer (2004) studied traditionally and alternatively certified CTE teachers’ perceptions of their first year of teaching. Traditionally certified teachers were more likely to report they were better prepared in pedagogy; alternatively certified teachers were more likely to report they were better prepared in knowledge of content areas. All teachers needed additional ongoing support in classroom management and working with special needs students. These needs were similar to those cited in survey data from CTE teachers at High Schools That Work sites. Additionally, administrators identified classroom management as the most common deficiency among new CTE teachers. More than half of the school leaders indicated that teaching strategies was a challenge for new CTE teachers. Forty-three percent of administrators surveyed believed that newly hired CTE teachers lacked the skills to handle diversity and students with special needs (Bottoms & McNally, 2005 as cited in Sass & Bottoms, 2011).

As leaders plan strategies for recruiting, developing, and retaining teachers, it is crucial to consider why they chose the profession. Since most teachers choose education because they want to make a difference in children’s lives, non-monetary rewards may be more meaningful than salaries or signing bonuses. The survey conducted by Public Agenda and the National Comprehensive Center for Teacher Quality (Rochkind et al., 2007) indicated that 71% of alternatively certified CTE teachers would choose a school where administrators provide strong support over a school that provided a higher salary.

CHAPTER 3

METHODOLOGY

Introduction

Chapter 3 describes the design of the study and explains the procedures the researcher used to conduct the study. The purpose of this study was to examine the preparation of South Carolina's work-based certified career and technical education (CTE) teachers. First, the study determined the extent that the work-based certification program includes best practices of CTE teacher certification programs. Second, the study revealed perceptions of teachers who completed the program. Third, the study determined the retention rates of South Carolina's beginning teachers (CTE) who completed the work-based certification program. This chapter includes an overview of the study, research design, population, instrumentation, data collection procedures, methods of data analysis, and limitations.

South Carolina does not calculate teacher retention for CTE work-based certified teachers. Therefore, this study is important because it will add to the limited research that exists in the area of CTE teacher retention. The researcher's desire is that this information will be helpful to CTE leaders as they seek to improve teacher quality and teacher retention.

Overview of the Study

South Carolina's career and technology teachers receive certification through several traditional and alternative routes. The traditional route refers to teacher

preparation programs at the collegiate level where students earn a bachelor's or master's degree and complete student teaching. Alternative routes refer to the methods of certification that allow candidates to obtain certification after earning a degree and/or working in a related field. One alternative certification route for CTE teachers in South Carolina is work-based certification which is the basis for this study (See Appendix A for a description of the work-based certification program).

The purpose of this study was to examine the certification program for work-based certified teachers and identify the extent to which the program contains evidence of best practices based on literature. The study determined the perceptions of a sampling of South Carolina's CTE teachers who have completed the DIRECT (Developing Instructional Readiness for Educators of Career and Technology) Institute. Additionally, the study determined the retention rates of beginning CTE teachers in South Carolina who received their certification through the work-based certification route.

To determine the retention rates, this study was limited to South Carolina's CTE teachers who received work-based certification from 2003-2004 through 2008-2009. The study provided annual retention rates for the first three years. The starting year, 2003-2004, was chosen because the South Carolina Department of Education lost data from the previous year due to file corruption. This lack of continuity would cause problems with the validity of the study. The ending year, 2008-2009, was chosen because the South Carolina Department of Education provided information through 2011-2012. This allowed the researcher to examine the retention rates for three years (2009-2010, 2010-2011, and 2011-2012). The researcher chose to study the three-year retention rates because this is the number of years that it takes to complete the major components of the

program. Additionally, research shows that it can take up to five years for a teacher to become proficient (Claycomb & Hawley, as cited in Sun, 2012).

In order to examine the certification program and retention rates of South Carolina's beginning CTE work-based certified teachers, the researcher explored the following questions:

1. To what extent are best practices evident in South Carolina's CTE work-based certification program?
2. What are the perceptions of CTE work-based teachers who completed the certification program?
3. What are the first, second, and third year retention rates for South Carolina's beginning teachers who received CTE work-based certification from the years 2003-2004 through 2008-2009?
4. Do third year retention rates vary across content areas?
5. Do third year retention rates vary based on teachers' race and gender?

The researcher obtained permission from the Institutional Review Board (IRB) prior to conducting the study (See Appendix B).

Research Design

The researcher used mixed methods to conduct the study. The researcher used descriptive research methodology to collect data such as frequencies and percentages related to the retention rates of beginning CTE work-based certified teachers in South Carolina. This method was selected because it is a means to organize, summarize and distinguish characteristics of an entire collection or population (O'Rourke, Hatcher &

Stepanski, 2005). Frequencies and percentages were used to describe the following information: total number of teachers, CTE content areas, gender, and race.

In this study, the first question addressed best practices from the literature. The researcher used a qualitative approach in the form of a content analysis to determine the extent that best practices are evident in South Carolina's CTE work-based certification program. For the second question, the researcher conducted interviews using qualitative research to determine teachers' perceptions about the work-based certification program. Finally, the researcher used quantitative analysis to answer questions three, four, and five which examined the retention rates for beginning CTE work-based certified teachers who received initial certification from 2003-2004 through 2008-2009. The retention rates were calculated annually for the first three years. For example, the annual retention rates for a teacher hired in 2003-2004 were calculated from the data that were provided for the next three years: 2004-2005, 2005-2006, and 2006-2007. Therefore, the data for 2006-2007 represented the third year retention rate. The researcher used Chi-Square Tests of Independence to address the relation between teacher retention and CTE content areas as well as race and gender.

Question 1: To what extent are best practices evident in South Carolina's CTE work-based certification program?

Content Analysis

For the first research question, the researcher conducted a content analysis to answer the question, "To what extent are best practices evident in South Carolina's CTE work-based teacher certification program? In order to do the content analysis, the researcher utilized procedures from Krippendorff (2013): (a) preparatory research, (b)

units of analysis, (c) sampling strategies, (d) coding categories, (e) inferential procedures, and (f) tabulation and reporting.

Preparatory Research

Information gathered from a review of the literature was used to identify best practices related to new teacher induction programs. The researcher conducted searches through various databases such as ERIC and EBSCO as well as search engines on the internet such as Google. The researcher also gathered data from professional organizations such as the Association of Career and Technical Education as well as CTE certification programs from other states. The first source was entitled “*Actions States Can Take to Place a Highly Qualified Career/Technical Teacher in Every Classroom*” by Gene Bottoms and Kathleen McNally (2005) who are two experts in the field of career and technical education. The second source was “*Improving Secondary Career and Technical Education through Professional Development: Alternative Certification and Use of Technical Assessment Data*” developed by the National Research Center for Career and Technical Education (NRCCTE) in partnership with the Southern Regional Education Board (SREB). The authors were Heather Boggs Sass and Gene Bottoms (2011). The final source was “*Study of State Certification/Licensure Requirements for Secondary Career and Technical Education Teachers*” by Christopher J. Zirkle, Lindsey Martin, and N. L. McCaslin (2007).

Unit of analysis

The unit of analysis was South Carolina’s work-based teacher certification program. The researcher retrieved the components of this program from the South

Carolina Department of Education website and received supplementary information from teachers and other individuals associated with the program.

Sampling

The researcher did not conduct a sample because “studying the collected works of a particular author requires no sampling” (Krippendorff, 2013, p. 121). Although the certification document does not have a specific author, it is a “body of texts that includes all of its kind” (Krippendorff, 2013, p. 121).

Descriptive Coding

From a review of literature, the researcher identified the best practices that comprise effective CTE certification programs and assigned each best practice to a specific category. The researcher developed a coding form that lists the best practices by category. The coding form also included a space for “other” which was used to identify best practices that appeared in South Carolina’s work-based certification that were not on the original list from the literature. As the researcher read the certification documents carefully, the coding form was marked to indicate the presence or absence of best practices.

Tabulation and Reporting

Once the coding was complete, the researcher created a table with four columns. The first column lists the best practices. The second column indicates whether the best practice is present. The third column indicates whether the best practice is absent. The fourth column indicates if the data is unknown or unclear. The researcher used tables to represent the findings. This information will be available for career and technology leaders throughout the state and beyond.

Question 2: What are the perceptions of CTE work-based teachers who completed the certification program?

Interviewing

The second research question explored the perceptions of CTE work-based certified teachers who completed the certification program. The researcher used a qualitative research design in the form of an interview. A qualitative approach was chosen because the researcher sought to provide a holistic view about CTE teacher preparation. This method is appropriate when “researchers are interested in the meanings people attach to the activities and events in their world and are open to whatever emerges” (Roberts, 2004, p. 111). Interviewing allowed the researcher to understand the experiences of participants and to gain insight into their individual stories.

Data Collection

The researcher used a structured interview approach by asking the same questions of each participant. One of the first steps the researcher took was to construct a set of open-ended interview questions (See Appendix C) that covered each aspect of the South Carolina’s work-based certification program. The researcher was careful not to include information that was not related to the program. The researcher administered the interview to “test” participants in order to clarify any information prior to the real interviews. The researcher obtained permission/or and support from the proper officials for the teachers to participate. The researcher explained the purpose of interviewing graduates of the program and emphasized that the results of the study will be valuable to them as leaders of career and technical education in South Carolina.

Selection Process

The researcher sought participants for this study by contacting the president of the professional organization, Career and Technical Education Administrators (CTEA), to request that she email South Carolina's CTE principals and directors. The president gave the researcher permission to email principals and directors asking them to provide email addresses of CTE teachers who completed the work-based certification program. The researcher did not include teachers that worked in the district in an effort to prevent teachers from feeling obligated to respond in a certain manner because of working in the same district. The researcher made initial contact with teachers via email and followed up with a phone call to each teacher that consented to participate.

The researcher explained the purpose of the research study and sought to establish some type of connection with the participant. Upon receiving consent, the researcher arranged a face-to-face meeting to conduct the interview. If a face-to-face meeting could not be arranged due to distance, scheduling conflicts, etc., the researcher conducted a phone interview instead. The researcher interviewed 8 teachers from a variety of content areas. The researcher concluded the interviews after determining that the information was sufficient and the researcher was hearing the same information. Prior to the interviews, the researcher asked each participant to sign a consent form (See Appendix D) adapted from the components of informed consent outlined by Siedman (2013). It included the following parts: An invitation to participate, risks, rights, possible benefits, confidentiality of records, dissemination, and contact information. During the interview, the researcher obtained information about the teachers' CTE content area. Information about each teacher's gender and race was gathered from data provided by the South

Carolina Department of Education. The researcher encouraged the participant to agree to be audio taped to ensure that information was not misinterpreted or recorded incorrectly. The researcher proceeded with the interview and transcribed the interview at a later time via electronic format.

Data Analysis

The researcher organized the transcriptions in electronic files and reviewed each transcription thoroughly by marking the information that was significant. The researcher identified commonalities among all transcriptions and categorized the information in an effort to manage the data effectively. The researcher used a chart to record this information and developed themes based on participant responses. The researcher interpreted the data that was gathered and provided a narrative summary of the results.

Question 3: What are the first, second, and third year retention rate for South Carolina's beginning teachers who received CTE work-based certification from the years 2003-2004 through 2008-2009?

Population

The population that was used to determine the retention rates for this study consisted of beginning CTE work-based certified teachers in South Carolina who became employed between 2003-2004 and 2008-2009. The rationale for selecting this group of teachers was that a large number of new CTE teachers in South Carolina receive certification through this route. Also, this population included teachers at traditional high schools as well as career and technology centers across the state which allowed the researcher to study a broad range of content areas. Finally, although South Carolina maintains data for teachers who are certified through traditional routes, it does not

calculate the retention rate for work-based certified teachers. This study will contribute to the data that already exist and will provide insight into an area that has rarely been explored.

Data Collection

In order to calculate the retention rate, the researcher contacted the South Carolina Department of Education (SDE) to request information about career and technology teachers who received work-based certification from 2000-2001 through 2008-2009. This required collaboration between two divisions at the SDE: The Office of Career and Technology Education (OCTE) and the Office of Research and Data Analysis (ORDA).

The OCTE searched for certificate numbers with the prefix “90” which is specific to work-based teaching certificates and provided certificate numbers to the ORDA. The ORDA manipulated the data and provided the following information in the form of Microsoft Excel spreadsheets: certificate number, initial year of certification, district identification number, school identification number, race, gender, education level, area of certification, position code, and total years experience.

The ORDA provided eleven separate spreadsheets sorted in ascending order by certificate number which is aligned with initial year of employment. The sheets covered the years 2000-2001 through 2011-2012. The data were already sorted into cohorts of teachers based on their year of certification thus eliminating the need for the researcher to manipulate the data. Each spreadsheet contained cumulative employment information for each teacher. Here is an example of how the data were arranged. Let’s say that the first spreadsheet was for 2001-2002 and listed information for certificate numbers 90000-90060. This was the first cohort of teachers. The second spreadsheet was for 2002-2003

and showed two cohorts: certificate numbers 90000-90060 (first cohort) that were still employed and certificate numbers 90061-90075 (second cohort) that received initial certification. The third spreadsheet was for 2003-2004 and showed three cohorts: certificate numbers 90000-90060 (first cohort) that were still employed, certificate numbers 90061-90075 (second cohort) that were still employed, and certificate numbers 90075-90140 (third cohort) that received initial certification. This pattern continued through eleven spreadsheets and ended with initial certification and employment data for 2011-2012.

The department did not provide initial certification data for teachers who started in 2002-2003 because the source data file was corrupted and could not be recovered by the South Carolina Department of Education. Because of the lack of data for 2002-2003, the research study began with the 2003-2004 school year in order to maintain the validity of the study.

Data Analysis

The data collection period for calculating the retention rate for this study was 2003-2004 through 2011-2012. Prior to manipulating the information provided by the state department, the researcher deleted teachers who had prior teaching experience in an effort to maintain an even playing field. Because teachers with prior teaching experience might have participated in initial certification programs elsewhere, it might have had an impact on their retention.

The third research question dealt with the first, second, and third year retention rates of South Carolina's CTE work-based certified teachers who received the initial certification from 2003-2004 through 2008-2009. The researcher used features and

formulas in Microsoft Excel to manipulate the data. The researcher first determined the total number of teachers in each cohort for each year of employment by using the “Count” feature to perform this task. Then, the researcher used formulas to determine the retention rates. For example, let’s say that in 2003-2004, there were 66 teachers (certificate numbers 90075-90140) who received CTE work-based certification. If 54 of those teachers were still teaching in 2004-2005, the first year retention rate would have been calculated by dividing the number of teachers remaining (54) by the number of teachers who started (66). This would have resulted in an 82% first year retention rate. The researcher created an additional column in Microsoft Excel to record the retention status for each individual teacher. The researcher entered “Y” if the teacher returned and “N” if the teacher did not return. This information was used to determine the answers to the third research question.

Questions 4 and 5: Do third year retention rates vary across content areas? Do third year retention rates vary based on teachers’ race and gender?

The fourth and fifth questions asked whether retention rates vary based on CTE content areas and teachers’ race and gender. Prior to entering the information from Microsoft Excel into statistical software called SAS, the researcher had to consolidate 55 content areas into 5 categories: 1) Architecture, Construction, and Manufacturing; 2) Graphics, and Information Technology; 3) Hospitality and Tourism, Family and Consumer Sciences, and Health and Human Services; 4) Mechanics and Repair; and 5) Medical. A two-way classification table produced by SAS allowed the researcher to analyze the data. A Chi-Square Test of Independence was generated to determine the relationship between teacher retention and the classification variables that represented (1)

content area, (2) race, and (3) gender. The researcher calculated Chi Square to determine what proportion of CTE work-based certified teachers returned the following year; the proportions based on content area, race, and gender; and any relationships that existed. The researcher referred to the SAS output to determine Cramer's V as a measure of association. The researcher estimated effect size to determine the magnitude of the difference between teachers that stayed and teachers that left based on content area, race, and gender. The researcher reported the information generated in SAS in the form of descriptive narratives and tables.

CHAPTER 4

RESULTS OF THE STUDY

As stated in previous chapters, this study was designed to examine South Carolina's work-based teacher certification program for beginning career and technical education (CTE) teachers. This chapter presents the results of the study and is organized in terms of five specific research questions. The study determined the extent that the teacher certification program includes best practices of CTE teacher certification programs based on the literature. Additionally, the study revealed perceptions of teachers who completed the program. Finally, the study provided retention rates of South Carolina's beginning teachers (CTE) who completed the work-based certification program and determined the relationship between retention rates and content area, race, and gender. The population for this study was work-based career and technical teachers who received their initial certification from the 2003-2004 school year through the 2011-2012 school year.

The South Carolina work-based teacher certification program has specific requirements which include a pre-service/in-service program called DIRECT Institute (Developing Instructional Readiness for Educators of Career and Technology). Appendix B provides details of the entire certification program.

Sources of Data

Several sources of data were used to conduct this study. For the first research question which utilized a content analysis, the researcher used various search engines, databases, and professional organizations to generate a list of best practices of CTE teacher certification programs. For the second question the researcher conducted interviews of teachers who completed the work-based certification program based on those who responded to an emailed request. Data for the third, fourth, and fifth research questions were used to calculate retention rates. This information was retrieved from the South Carolina Department of Education—Office of Career and Technology Education and Office of Research and Data Analysis.

Question 1: To what extent are best practices evident in South Carolina’s CTE work-based certification program?

The researcher reviewed best practices of career and technical teacher certification programs by examining several sources of information. Best practices were divided into the following elements: Academic Requirements, Technical Content Requirements, College Courses/Pedagogical Preparation, Support, Current Employment, and Other Components. Table 4.1 is a synthesis of data taken from three sources: *Actions States Can Take to Place a Highly Qualified Career/Technical Teacher in Every Classroom* (Bottoms & McNally, 2005); *Improving Secondary Career and Technical Education through Professional Development: Alternative Certification and Use of Technical Assessment Data* (Sass & Bottoms, 2011); and *Study of State Certification/Licensure Requirements for Secondary Career and Technical Education Teachers* (Zirkle, Martin, & McCaslin, 2007). The table identifies the recommended

minimum requirements for a career and technical work-based teacher certification program.

Table 4.1

Analysis of South Carolina's Work-Based Career and Technical Teacher Certification Program

BEST PRACTICE	P R E S E N T	A B S E N T	U N K N O W N
Minimum Academic Requirements With a Bachelors Degree: <ul style="list-style-type: none"> • Bachelors in CTE or related field • PRAXIS I within 1 year 		X	
Minimum Academic Requirements Without a Bachelors Degree: <ul style="list-style-type: none"> • Associates or post-secondary certificate • PRAXIS I within 2 years • Meet requirements for admission to university program or other approved training program leading to a Bachelors degree within 5 years 		X	
TCR (Technical Content Requirements) With or without a Bachelors Degree: <ul style="list-style-type: none"> • 4,000 hours full-time recent work experience AND • Industry certification or credential OR • Pass appropriate exams (Industry exams, NOCTI—National Occupational 	X		

Competency Testing Institute or PRAXIS I, PRAXIS II Subject Assessment, or PRAXIS III PLT—Principles of Learning and Teaching)			
College Courses/Pedagogical Preparation:			
Prior to Year 1		X	
During Year 1	X		
End of Year 1	X		
Curriculum/Instructional Planning	X		
Methods of Teaching/Instructional Strategies	X		
Classroom Assessment	X		
Classroom Management	X		
Career Counseling		X	
Reflection and Revision		X	
Philosophy		X	
Practice		X	
Career and Technical Education		X	
Support Component:			
Induction Program or PreService/In-Service Program	X		
Mentoring/Master Teacher	X		
Coaching		X	
Professional Learning Community		X	
Administrative and school support			X
Currently Employed or Offer of Employment	X		
Other components offered in SC that are not evident in best practices:	<ul style="list-style-type: none"> Career and Technology Student Organization (CTSO) 		

The study revealed that South Carolina's program contains about half of the elements that were identified in educational literature. The study of best practices indicated that teachers who enter the field with a bachelor's degree in CTE or a related field should take and pass the PRAXIS I exam within the first year of teaching. This was

not evident in South Carolina's program which requires teachers to take the exam during their first year; however, they are not required to actually pass the exam until the fifth year.

Table 4.1 also shows recommended best practices regarding teachers without a bachelor's degree. None of the recommendations were evident in South Carolina's work-based certification program. South Carolina does not require teachers to have an associate's degree or post-secondary certificate, allows teachers up to five years to pass the PRAXIS I, and does not have requirements for entering a university or other approved training program leading to a bachelor's degree.

Technical Content Requirements. Although the program's requirements differ based on the content area, South Carolina's program meets the minimum recommendations for technical content which addresses teacher's occupational work experience as well as industry credentials.

College Courses/Pedagogical Preparation. The study of best practices indicated that South Carolina's work-based teacher certification program provides courses and pedagogical preparation in curriculum/instructional planning, methods of teaching/instructional strategies, classroom assessment, and classroom management. It includes opportunities to receive these courses during the first year as well as at the end of the first year of teaching. However, the program does not always allow teachers to receive training prior to the first year. If teachers are hired in the spring or early enough in the summer, they are able to participate in DIRECT Institute #1—Methods of Teaching in July. If they are hired before school starts, they can take the DIRECT Institute #1 during the fall semester. Unfortunately, if they are hired after school starts,

they do not have an opportunity to take the first institute until the following summer.

Teachers in this situation must take DIRECT Institute #2—Classroom and Lab Management in the spring. This means they have to start teaching without any formal coursework. Also, it means they have to enroll in the institutes out of sequence.

Additionally, South Carolina’s program does not include courses or preparation in career counseling, reflection and revision, philosophy, practice, and career and technical education (See Appendix B for details about the DIRECT Institute).

Support. As indicated in Table 4.1, South Carolina’s program clearly includes two of the three recommended components of the support element of teacher certification. The program includes an induction/in-service program as well as a mentoring component.

However, it does not include provisions for coaching and a professional learning community. Because administrative and school support are beyond the control of South Carolina’s work-based program, it is unknown whether this component is evident.

Current Employment. This element is evident because South Carolina’s work-based teacher certification program requires CTE teachers to be employed or have an offer of employment prior to being admitted to the program.

Other Components. Finally, the study revealed that South Carolina’s work-based teacher certification program includes a component that requires teachers to participate in a career and technology student organization. This was the only component that was not evident in the researched based literature.

Question 2: What are the perceptions of CTE work-based teachers who completed the certification program?

The researcher interviewed 8 teachers from 7 different content areas of which 6 were White, 2 were Black, 5 were female, and 3 were male. Six of them have been teaching from 2 to 12 years. Two of them previously taught school before the work-based certification program was developed in 2002. As indicated in Table 4.2, their levels of education varied from high school diploma to bachelor's degree, and their occupational work experience ranged from 5 to 29 years at the time of initial teacher certification.

Table 4.2

Description of Teachers Who Were Interviewed

Content Area	Race	Gender	Year Started	Level of Education	Years of Occupational Work Experience Prior to Teaching
Health Sciences	W	F	2002	Bachelor of Science in Nursing	10
Auto Tech	W	M	2003	High School Diploma	28
Health Sciences	W	F	2005	Associates in Nursing	20
Cosmetology	B	F	2006 (previously taught in the 1980s)	High School Diploma and 2 year of technical school	25
Welding	W	M	2007 (previously taught in the 1970s)	Bachelor of Science in Industrial Education for Industry	29
Engineering—PLTW (Project Lead the Way)	W	F	2010	Bachelor of Architecture	5
Law Enforcement	B	F	2011	Masters in Human Resources	16
Heating and Air Conditioning	W	M	2011	Associates in Heating	18

				Ventilation and Air Conditioning	
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Additional results of the study indicated that all teachers were still teaching in the same content areas and the same schools as when they started. Also, the interviews revealed that all teachers took the required exams: trade exams, industry certification exams, and basic skills tests (PRAXIS and Work Keys).

One of the researcher's goals for conducting interviews was to find out the types of courses that teachers took to fulfill the requirements of the work-based certification program. There was a wide range of responses that included courses in methods of teaching, psychology, math for classroom teachers, classroom management, and integrating technology into the curriculum. Teachers' responses indicated that they took courses through traditional methods, virtual methods, and sessions at the Education and Business Summit which is a state conference designed for career and technical educators.

Another purpose for conducting interviews was to determine whether the work-based certification program had an impact on teachers' decisions to remain in the profession. One teacher stated "my decision to remain is directly related to the DIRECT program." The teacher indicated that "without DIRECT there would have to be something else." One teacher stated clearly that the program did not influence the decision. The teacher stated "no, the program did not influence my decision...a mentor at school and a friend in curriculum really influenced me." One teacher responded: "My initial answer is no. The program made me the teacher that I am, but it really did not make me stay." Another teacher stated "time invested in the program was a good reason to stay." One comment was "just being with the students kept me in the profession—not necessarily the DIRECT program." One teacher replied "it didn't have much influence

one way or another...lots of busy work...coming from industry it didn't have a lot of value...it would be more useful for someone coming out of college." When asked whether the work-based certification program influenced the decision to remain in the teaching profession, another teacher stated "not necessarily...it gave me a support structure including peers and a mentor....people to know within the education community." Another teacher felt that "it didn't have much influence one way or another."

Finally, the researcher wanted to get suggestions for improving the work-based certification program in South Carolina. Teachers provided the following comments:

- "I do not see any improvements. The state department has a handle on it."
- "Should try to fit the program to the teacher's needs rather than fitting the teacher to the program."
- "More observations need to take place within the schools; more opportunities for hands-on."
- "The associates at state department did not have content knowledge so I was always directed back to my mentor."
- "The DIRECT program should be in sequence."
- "It was confusing because the state and district have different requirements...would help if there was consistency."
- "Great job...They have the right instructors."

To display the results of the interviews, the researcher developed Table 4.3 which includes three components of the work-based certification program: Professional Development, Mentor/Master Teacher, and Career and Technology Student Organizations (CTSO).

Table 4.3

Interview Results

Themes	What was most helpful?	What was least helpful?	Suggestions for improvement
Professional Development Sessions	Classroom management Lesson planning Instructional strategies Assessment All were helpful National speakers were helpful Breaking off into areas by discipline. The order of the DIRECT Institute was appropriate	Types of learning (contextual, project-based learning, etc.) Presenters who were not in CTE Teambuilding games that they played A lot were not helpful DIRECT Institute instructor who was not well prepared The DIRECT Institute going out of order	Need to add a section on educational terminology like IEPs, etc. Instead of playing games, maybe show some type of video to show teaching techniques Need to offer satellite classes in locations other than Columbia Need to provide enough time to process the information learned in the summer before teaching Decrease the amount of written work you have to do if you miss a class
Mentor/Master Teacher Visits	Mentor in same school Mentor at another school was great Mentor in same content area 2 visits to mentor	One master teacher had only been teaching one year longer Mentor assigned but was not much help; friend was more helpful	Provide mentors in the same CTE area Be sure the master teacher is really a “master” teacher Provide a master teacher who

	<p>teacher...still talks to one of them in curriculum area</p> <p>Master teacher visit with an experienced teacher</p> <p>2 master teacher visits at 2 different locations</p> <p>Observing mentor to learn terminology and see what the class looked like</p> <p>Paperwork, documents, templates from mentor</p> <p>Seeing someone else present a topic</p> <p>One-on-one conversations</p> <p>Very beneficial to see nurse interacting with students; observed how the teachers planned for the day</p> <p>Best advice from the mentor was “don’t reinvent the wheel”</p>	<p>Teacher was not well prepared</p> <p>Mentor did not keep in touch</p>	<p>teaches similar demographics</p> <p>Allow new teachers to observe the mentor and other teachers</p>
Career and Technology Student Organization Competitions (HOSA—Health Occupations Students of America; SkillsUSA)	<p>Competitions prepared teacher to work with students on necessary skills</p> <p>Excellent opportunity to see other competitions</p> <p>Competitions at community college</p> <p>Engineering</p>	<p>Competition was behind closed doors so the instructor could not really see anything</p> <p>Could not get paperwork needed from people running the contest</p>	<p>NA</p>

	<p>competition at university</p> <p>Took students to observe....reinforced the curriculum....good to see if students were at the same level as other high school students</p> <p>Networking with peers</p> <p>Implemented skills tasks into the program....without the competitions that would not have happened</p>		
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Two of the eight teachers felt that all of the professional development sessions were helpful. Only one teacher indicated that a lot of the sessions were not helpful. One teacher felt that the mentor assigned through the work-based program was not helpful. One teacher did not gain anything from the competitive events. Three teachers did not remember the competitive event or were not required to complete that assignment.

Question 3: What are the first, second, and third year retention rate for South Carolina's beginning teachers who received CTE work-based certification from the years 2003-2004 through 2008-2009?

Table 4.4 shows the results of the study for teachers that began in 2003-2004.

Table 4.4

Retention of Work-Based Certified Teachers Who Started Teaching in the 2003-2004 School Year

School Year	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
2003-2004	44		
2004-2005	34	10	77%
2005-2006	27	7	61%
2006-2007	26	1	59%

Of the 44 teachers who began, 34 teachers returned after the first year resulting in a retention rate of 77%. Twenty-seven teachers returned after the second year resulting in a retention rate of 61%. Twenty-six teachers returned after the third year resulting in a retention rate of 59%.

Table 4.5 shows the results of the study for teachers that began in 2004-2005.

Table 4.5

Retention of Work-Based Certified Teachers Who Started Teaching in the 2004-2005 School Year

School Year	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
2004-2005	78		
2005-2006	65	13	83%
2006-2007	59	6	76%
2007-2008	50	9	64%

A total of 78 teachers started teaching, and after one year 65 of those teachers remained in the classroom. This represents an 83% retention rate. For the second and third years,

the numbers of teachers that returned were 59 and 50 respectively. This resulted in 76% and 64% retention rates after the second and third years respectively.

Table 4.6 shows the retention rates for the 2005-2006 school year.

Table 4.6

Retention of Work-Based Certified Teachers Who Started Teaching in the 2005-2006 School Year

School Year	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
2005-2006	64		
2006-2007	51	13	80%
2007-2008	44	7	69%
2008-2009	41	3	64%

Of 64 teachers that started, 51 remained after the first year, 44 after the second year, and 41 after the third year. The retention rates were 80%, 69%, and 64% respectively.

Table 4.7 shows the retention rates for teachers that started in 2006-2007.

Table 4.7

Retention of Work-Based Certified Teachers Who Started Teaching in the 2006-2007 School Year

School Year	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
2006-2007	71		
2007-2008	65	6	92%
2008-2009	58	7	82%
2009-2010	55	3	77%

Results of the study indicated that 71 teachers began, and 65 remained after the first year resulting in a 92% retention rate. After the second year, 58 teachers or 82% returned to

the classroom. The third year results showed that 55 teachers remained which resulted in a 77% retention rate.

Table 4.8 provides information about 62 teachers who started in 2007-2008.

Table 4.8

Retention of Work-Based Certified Teachers Who Started Teaching in the 2007-2008 School Year

School Year	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
2007-2008	62		
2008-2009	50	12	81%
2009-2010	43	7	69%
2010-2011	35	8	56%

Fifty of those teachers returned after the first year, 43 returned after the second year, and 35 returned after the third year. These figures represent retention rates of 81%, 69% and 56% respectively.

Table 4.9 shows that 69 teachers started in 2008-2009.

Table 4.9

Retention of Work-Based Certified Teachers Who Started Teaching in the 2008-2009 School Year

School Year	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
2008-2009	69		
2009-2010	59	10	86%
2010-2011	52	7	75%
2011-2012	47	5	68%

Fifty-nine teachers returned after the first year. This resulted in an 86% retention rate. After the second year, 52 teachers or 75% remained in the classroom. The third year resulted in 47 teachers returning which represented 68% of the total number that started.

Table 4.10 shows the retention rates for the first three years for all teachers who started between 2003-2004 and 2008-2009.

Table 4.10

Retention for Initial Three Years of Teaching for Work-Based Certified Teachers

	Total Number of Teachers	1st Year Retention Rate	2nd Year Retention Rate	3rd Year Retention Rate
2003-2004	44	77%	61%	59%
2004-2005	78	83%	76%	64%
2005-2006	64	80%	69%	64%
2006-2007	71	92%	82%	77%
2007-2008	62	81%	69%	56%
2008-2009	69	86%	75%	68%
Averages		83%	72%	65%

Teachers who began in 2006-2007 had the highest retention rates for all three years of 92%, 82%, and 77%. The most drastic decrease in a one-year retention rate occurred with teachers who started in 2003-2004. From the first year to the second year, the amount decreased by 16% from 77% to 61%. The average retention rates for teachers who started in 2003-2004 through 2008-2009 were 83% for the first year, 72% for the second year, and 65% for the third year.

Question 4: Do third year retention rates vary across content areas?

The researcher used a Chi-Square Test of Independence to determine if a relationship existed between the third year retention rates and the content areas of teacher certification. The third year retention rates by content area are displayed in Table 4.11.

Table 4.11

Third Year Retention Rates by Content Area

Content Area	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
Medical	133	63	53%
Architecture, Construction, and Manufacturing	91	25	73%
Hospitality and Tourism, Family and Consumer Sciences, and Human Services	75	19	75%
Mechanics and Repair	61	18	70%
Graphics and Information Technology	27	9	67%
Unknown	1	1	0%

Note. $\chi^2 = 17.0286$, $p = .004$, *Cramer's V* = .20.

Results of the study indicated that there was a relationship between retention rates and CTE content area, $\chi^2 = 17.0286$, $p = .004$ with a small effect size (*Cramer's V* = .20).

Teachers who taught in the Medical content areas remained in the classroom at the lowest rate of 53% even though they represented the largest total number of teachers at 133.

Teachers who taught in the Hospitality and Tourism, Family and Consumer Sciences, and Health and Human Services content areas had the largest retention rate of 75%.

Question 5: Do third year retention rates vary based on teachers' race and gender?

Table 4.12 shows the results of a Chi-Square Test of Independence which was used to determine if a relationship existed between the third year retention rates and the teachers' race.

Third Year Retention Rates by Race

Race	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
White	299	109	64%
Black	73	22	70%
Other	8	4	50%
Unknown	1	0	100%
Missing Information	7		

Note. $\chi^2 = 2.3222$, $p = .50$, *Cramer's V* = .08.

Results of the study indicated that there was not a relationship between retention rates and race: $\chi^2 = 2.3222$, $p = .50$ with a small effect size (*Cramer's V* = .08).

Table 4.13 shows third year retention rates by race.

Table 4.13

Third Year Retention Rates by Gender

Gender	Total Number of Teachers	Number of Teachers Who Left	Retention Rate
Male	208	66	68%
Female	172	69	60%
Missing Information	8		

Note. $\chi^2 = 12.8902$, $p = .09$, *Cramer's V* = .09.

Of the 299 White teachers 64% remained and of 73 Black teachers 70% remained.

Results showed that 68% of males remained and 60% of females remained. There was

not a significant relationship between retention rates and gender: $\chi^2 = 12.8902$, $p = .09$ with a small effect size (*Cramer's V* = .09).

In summary, the study resulted in several findings related to work-based teacher certification in South Carolina. First, the program includes about half of the elements of best practices based on literature. Second, eight CTE teachers who completed the program provided comments about their experiences. Third, the average retention rates for all teachers that started between 2003-2004 and 2008-2009 were 83% after the first year, 72% after the second year, and 65% after the third year. Fourth, there was a relationship between teacher retention and content area. However, there was no relationship between teacher retention and race and gender. The next chapter discusses the results of the study and provides recommendations for future research.

CHAPTER 5

CONCLUSION

The purpose of this study was to examine South Carolina's work-based certification program for career and technical education (CTE) teachers. The mix-methods study included qualitative and quantitative analyses. This chapter presents a summary of findings, conclusions, recommendations for policy and practice, and recommendations for further research. The chapter is organized by the five research questions relating to the certification program and teacher retention.

Summary of Findings and Conclusions

Question 1: To what extent are best practices evident in South Carolina's CTE work-based certification program?

A content analysis was used to determine how South Carolina's work-based certification program compared to the best practices found in current literature. After reviewing several sources, the researcher came up with the following categories to describe components of CTE teacher certification programs: Academic Requirements, Technical Content Requirements, College Courses/Pedagogical Preparation, Support, Current Employment, and Other Components. Results of the study showed that South Carolina's program contains about half of the elements that were identified in educational literature.

Academic Requirements

The first best practice of CTE certification programs dealt with academic requirements. Teachers who enter the program with a bachelor's degree are not required to pass PRAXIS I until the fifth year whereas best practices recommend they pass it in the first year. The PRAXIS I examines teachers' basic skills in reading, writing, and math. This academic requirement is important because teachers need to be competent in these areas if they are to deliver content effectively and prepare students for the 21st century. As indicated in the literature review, CTE teachers are charged with the responsibility of preparing students for careers as well as post-secondary education. This means that teachers must be knowledgeable in their content areas as well as in academics. Additionally, federal legislation mandates that teachers increase rigor and integrate academics into the curriculum. This is a reasonable expectation because if teachers have earned a bachelor's degree, they should possess the academic knowledge that is measured by this exam. Therefore, it would not likely make a difference whether the PRAXIS exam is taken after the first year or the fifth year.

Best practices indicate that teachers without a bachelor's degree should hold at least an associate's degree or post-secondary certification. This recommendation may be difficult to attain for several reasons. First, it is already difficult to find CTE teachers especially for certain content areas for a variety of reasons including federal and state legislation such as Perkins standards and Common Core State Standards. This requirement could add to the teacher shortage that already exists. Second, best practices recommend that teachers without a bachelor's degree should pass PRAXIS I within two years. This may be difficult for some CTE teachers who did not go beyond high school.

Additionally, it could present problems for teachers who have been out of high school for several years. Third, the literature suggests that certification programs should expect teachers to meet the requirements for admission to a bachelor's degree program within five years. This may be difficult due to the volume of expectations that new CTE teachers have to meet. Despite the challenges that may exist, this recommendation could increase teachers' commitment to the profession because it might show that the teacher has a desire to improve his/her knowledge. This commitment could have a positive impact on teacher retention.

Technical Content Requirement

South Carolina's work-based certification program aligns with best practices in that teachers must demonstrate competency in their career field through work experience and technical credentials. A study of best practices revealed that CTE teachers should have at least 4,000 hours full-time recent work experience and industry certification/credential or pass appropriate exams (Industry exams, NOCTI—National Occupational Competency Testing Institute or PRAXIS I, PRAXIS II Subject Assessment, or PRAXIS III PLT—Principles of Learning and Teaching). South Carolina meets this requirement because most of its work-based certified teachers must have at least three years experience which exceeds 4,000 hours. Additionally, all work-based certified teachers in South Carolina must pass appropriate industry exams and/or basic skills exams (PRAXIS I or Work Keys).

Because one of the purposes of CTE is to prepare students for their careers, the technical content requirement is important. It assures that teachers are knowledgeable and skilled in their content area. Prior work experience allows teachers to utilize their

industry contacts as advisory committee members, guest speakers, work-based learning partners, and program sponsors. Successful completion of industry credentials demonstrate that teachers are competent to prepare students for similar credentials upon their completion of CTE programs. As indicated in the Chapter 2 literature review, every institution that receives federal funds under Perkins IV must provide at least one CTE program that “leads to an industry-recognized credential or certificate at the postsecondary level” (Sass & Bottoms, 2011, p. 1).

College Courses/Pedagogical Preparation

The work-based teacher certification program in South Carolina includes only five out of ten components in the area of college courses and pedagogical preparation. One of the greatest challenges that work-based CTE teachers face is that they do not complete teacher preparation programs prior to entering the classroom. Best practices show that teachers should receive instruction in pedagogy prior to their first year of teaching. South Carolina’s pre-service/in-service program called DIRECT (Developing Instructional Readiness for Educators of Career and Technology) is a component of work-based certification. It requires instruction in pedagogy during the first year but not prior to the first year. It would be difficult to require this training prior to the first year because some teachers are not even hired until the beginning of school. This requirement would prolong the process of teacher certification which means principals may have to staff their classes with substitute teachers. If this requirement was implemented in South Carolina, it could increase the teacher shortage which could impact student achievement.

DIRECT offers professional development in four areas of pedagogy: curriculum/instructional planning, methods of teaching/instructional strategies, classroom

assessment, and classroom management. However, the work-based certification program does not include courses or preparation in career counseling; reflection and revision; philosophy; practice; and career and technical education. Career and technical education includes topics such as CTE history, career clusters, content standards, safety, equipment, and other topics that introduce teachers to CTE. Because South Carolina's program does not include this component, it would be left up to the individual school district to cover these areas. Some teachers may receive more adequate preparation than others depending on the level of support and emphasis that are given at the district or school level.

Practice is another crucial component in the area of college courses and pedagogical preparation. This refers to teachers having opportunities to do some form of "student teaching" rather than being placed directly into a classroom without delivering classroom instruction. The work-based program in South Carolina includes courses in methods of teaching and instructional strategies. However, these are generally offered from a theoretical standpoint versus practical application.

Support

The support component of CTE best practices is very important because some teachers identify lack of support as one of the reasons for leaving the profession. South Carolina's work-based certification program includes two out of four elements of support. DIRECT incorporates the induction program or pre-service/in-service program and mentoring/master teacher component. DIRECT includes very specific criteria that teachers must meet each year for the first five years. The program does not include coaching nor professional learning communities. Because administrative and school

supports are beyond the control of South Carolina's work-based program, it is unknown whether this component is evident.

Current Employment

Results of the study showed that best practices recommend that teachers are currently employed or have an offer of employment. South Carolina's program meets this recommendation.

Other Components

The inclusion of career and technology student organizations is only component that exists in South Carolina's work-based certification program that is not clearly evident in best practices. DIRECT requires teachers to attend a competitive event and complete a written assignment in an effort to become familiar with the organization. This encourages teacher to promote the student organizations to their students as a way to build leadership skills, character, and scholarship. Although student organizations are not listed as a separate best practice, the literature suggests this component as a part of recommended coursework in career and technical education.

Question 2: What are the perceptions of CTE work-based teachers who completed the certification program?

The researcher conducted interviews with eight CTE teachers who completed South Carolina's work-based certification program since 2002. Content areas included auto technology; cosmetology; engineering; health sciences; heating and air conditioning; law enforcement; and welding. Six were White, two were Black, five were female, and three were male. Six of them have been teaching from 2 to 12 years. Two of them previously taught school before the work-based certification program was developed in

2002. Teachers' levels of education varied from high school diploma to bachelor's degree, and their occupational work experience ranged from 5 to 29 years at the time of initial teacher certification.

Teachers took a variety of courses to fulfill the requirements of the work-based certification program. These courses included methods of teaching, psychology, math for classroom teachers, classroom management, and integrating technology into the curriculum. They took courses through traditional methods, virtual methods, and sessions at the Education and Business Summit which is a state conference designed for career and technical educators. These courses should help teachers to incorporate academics into the curriculum while providing rigorous classroom instruction which aligns with the expectations of Perkins legislation.

Teachers' responses varied when asked "Is there any component(s) of the program that influenced your decision to remain in the teaching profession?" Only one teacher indicated the program influenced the decision to remain in teaching. Other teachers felt that it had no impact or did not influence them to remain in the profession. Teachers provided suggestions for improving the program which included designing the program to fit the needs of teachers rather than trying to make every teacher fit the program. They also felt that more observations should occur in the schools, teachers should take the DIRECT Institute sessions in the proper sequence, and requirements for the state and districts should be consistent. Other suggestions included:

- Add a section on educational terminology like IEPs, etc.
- Show videos that demonstrate teaching techniques.
- Provide more opportunities for hands-on activities.

- Provide mentors in the same CTE area.
- Provide a master teacher who is really a “master” teacher.
- Provide a master teacher who teaches similar demographics.
- Allow new teachers to observe the mentor and other teachers.

Most of the teachers’ suggestions are consistent with the best practices identified in the first research question and could be incorporated into the work-based certification program with minimal cost or additional time.

The results of the interviews provided insight about three additional components of the work-based program. Teachers provided mixed responses about the helpfulness of professional development sessions, mentors/master teachers, and career and technology student organization competitive events. Most teachers found the professional development sessions and mentors/master teachers were helpful. Most teachers were assigned to an experienced mentor/master teacher; however, one master teacher had only been teaching one year longer than the new teacher. According to the literature, it is critical that teachers receive assistance from an experienced teacher who has the necessary skills to train them effectively. Half of the teachers either felt the competitive events were not helpful, could not remember the event, or were not required to participate in an event.

Question 3: What are the first, second, and third year retention rate for South Carolina’s beginning teachers who received CTE work-based certification from the years 2003-2004 through 2008-2009?

To determine retention rates, data provided by the State Department of Education (SDE) were entered into a Microsoft Excel spreadsheet. Retention rates for the first three

years for all teachers who started between 2003-2004 and 2008-2009 revealed that teachers who began in 2006-2007 had the highest retention rates for all three years of 92%, 82%, and 77% respectively. The most drastic decrease in a one-year retention rate occurred with teachers who started in 2003-2004 which represented a 16% decrease. The average third-year retention rate over a span of six years was 65%.

It is difficult to conclude whether this is a reason to be concerned because there are insufficient data about retention rates for alternative certification teachers. A study of the literature showed that approximately 75% of New York City Teaching Fellows remained after three years. The data for Troops to Teachers indicated that approximately 78% plan to remain at least five years; however, no data was provided about the actual retention rate.

Question 4: Do third year retention rates vary across content areas?

Using SAS statistical software, a Chi-Square Test of Independence revealed that a relationship existed between the third year retention rates and the content areas of teacher certification. The study showed that teachers who taught in the Medical content areas remained in the classroom at the lowest rate of 53% even though they represented the largest total number of teachers at 133. The Medical content areas included Health Science Technology and Dental Laboratory Technician. In 2010 NASDCTEC identified Health Science as one of the CTE areas with the greatest teacher shortage. The low retention rate and large teacher shortage may be attributed to the increased need for health care workers in the United States. Teachers who are trained in these areas may choose to go back into the workforce because of higher wages and opportunities for advancement that may not be available within the school system.

Teachers who taught in the Hospitality and Tourism, Family and Consumer Sciences, and Human Services content areas had the largest retention rate of 75% after the initial three years.

Question 5: Do third year retention rates vary based on teachers' race and gender?

A Chi-Square Test of Independence determined that there was not a significant relationship between retention rates and race and gender. Third year retention rates by race indicated that 64% of White teachers remained and 70% of Black teachers remained. The retention rate for males was 68% and the retention rate for females was 60%. It is difficult to conclude whether these rates align with other alternative teacher certification programs because of the limited data that exist.

Recommendations for Policy and Practice

CTE leaders and lawmakers at the state, district, and school levels have the ability to make a positive impact on the preparation and retention of work-based certified teachers in South Carolina. They can take steps to evaluate and change the current teacher preparation program by utilizing existing resources in terms of human resources, time, and financial resources. The following recommendations are provided for policymakers and practitioners:

- South Carolina Department of Education should evaluate the CTE work-based teacher certification program for effectiveness and make changes that will benefit new teachers in the developmental stages of their career. They should provide evidence of best practices that exist in the program and should include a plan to incorporate best practices that are not apparent.

- One of the concerns that was revealed during the interviews was that the mentor/master teacher was not truly a master teacher. If this is a widespread problem, it could have a negative impact on the certification program as well as teacher retention. South Carolina Department of Education should provide training for CTE master teachers to ensure expectations are communicated clearly and consistently.
- Districts should require new CTE teachers to work with an experienced teacher at least one week prior to teaching their own classes. The experienced teacher should be a master teacher and/or mentor in a similar content area. The new teacher should have opportunities to observe the experienced teacher during classroom instruction as well as time to meet with the experienced teacher. This could require the use of a substitute teacher for a week, but the benefits for the new CTE teacher would outweigh the drawbacks of this arrangement. Additionally, state and district leaders could consider developing a pool of retirees who are willing to maintain their certification in order to teach classes until new teachers receive the necessary training.
- Currently, CTE work-based teachers are not required to pass the basic skills test until the fifth year of teaching. Leaders should require teachers to pass the basic skills assessment prior to teaching or no later than the first year. There are several reasons for this recommendation. First, teachers who do not possess adequate basic skills could have a very negative impact on student achievement. How can they incorporate academics into their curriculum if they lack the very same skills? Second, if they do not meet the requirements at

the end of the fifth year, the school has to start the recruitment and hiring process from the beginning which is time-consuming and expensive. The lack of continuity could prevent the CTE course of study from thriving and growing to its full potential.

- This study provided retention rates for work-based certified teachers who began in 2003-2004 through 2008-2009. The South Carolina Department of Education, Office of Career and Technical Education could duplicate this study by calculating retention rates on a regular basis. They could study data trends to determine whether changes need to be made in CTE programs.
- Districts and/or schools should conduct exit interviews that determine information such as why the teacher left, what the plans are for the future, how the preparation program was useful, and what could be improved. Interviews should be designed to reveal information about teachers' intentions to return to industry as a profession.
- The professional organization, Career and Technical Education Administrators (CTEA), could conduct a survey of administrators to determine the challenges they face when preparing new CTE teachers. The survey could solicit information that would provide data about specific content areas.
- School districts should assign a person to work with new CTE teachers. This person should have background in CTE and should conduct induction classes and provide support in the classroom in the form of observations and

coaching. To the extent possible, they should provide support that meets the specific needs of the teacher and should avoid a “one-size-fits all” design.

- School administrators should set a regularly scheduled time to meet with all new teachers. They should provide time for teachers to reflect and ask questions in a non-threatening environment. They should provide additional support for teachers who go through alternative certification routes.

Recommendations for Further Research

The findings and conclusions of this study indicate that there is a lack of data for alternative teacher certification programs—especially CTE programs. This study can contribute to the body of literature and can be used as the basis for further study. The following recommendations are offered:

- For this study, the researcher interviewed eight CTE teachers who completed the work-based certification program. Because this was a very small sample, state leaders could duplicate this study with a larger group of teachers that would make the study more reliable. They could also consider conducting a study of all beginning CTE teachers--including those who completed traditional teacher preparation programs to determine if there are differences in teachers’ perceptions based on certification route.
- Researchers could conduct additional studies that include CTE teachers throughout the state who left the profession. This could include interviews or surveys administered to a large number of people. This could reveal valuable information such as what was effective in their preparation program, why they left the profession, and suggestions for improvement.

- This study focused on retention rates by content area, race, and gender. The researcher recommends that this study is expanded to determine if retention rates vary by school district and/or geographical region.
- The study revealed that teachers in the Medical cluster had a lower retention rate than other clusters. Could this mean that they leave the profession to return to industry? One question that remains in the researcher's mind is "why are some content areas harder to fill than others?" These questions might be answered by conducting additional studies to determine whether there is a connection between the supply of workers in business and industry and the number of teachers that seek position in similar fields.

As a principal of a career and technical center, the researcher will be able to incorporate findings from this study at the school level that will help new teachers make a successful transition from industry to the classroom. The researcher sets aside a regularly scheduled time to meet with new teachers to discuss important topics such as long-range planning, instructional strategies, and classroom assessment. Additionally, the researcher has requested assistance from the district level to provide a coach that works with new CTE teachers throughout the district. One of the major changes the researcher will incorporate in the future is regular communication with the mentor in an effort to ensure the new teacher receives adequate support. The researcher plans to calculate the retention rates for teachers at the school and compare them to rates at the state level. Also, the researcher will provide more time for the new teacher to observe experienced teachers at the school level in addition to other schools. It is the researcher's desire that other leaders

will find this information helpful as they prepare CTE teachers in South Carolina and beyond.

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APPENDIX A

WORK-BASED CERTIFICATION PROGRAM

South Carolina's Career and Technology Education (CTE) teachers may receive teacher certification through traditional pathways which lead to a bachelor's degree. Traditional certification is available in specific subject areas: agriculture, business education, family and consumer sciences, and industrial technology. Additionally, the state provides an alternative path for other areas. This alternative route known as CTE Work-Based Certification allows teachers to receive credit for work experience in lieu of requiring a bachelor's degree. Participants in this certification program are required to provide go through several steps over a five-year period. The components of CTE Work-Based Certification include verification of work experience and the DIRECT (Developing Instructional Readiness for Educators of Career and Technology) Institute. DIRECT includes provisions for professional licensure/examinations and coursework.

After approval of all required documents, the Office of Educator Certification, Recruitment, and Preparation will provide a statement of eligibility which allows participants to search for a job. A teaching certificate will be issued after the office receives verification of employment applicant as a CTE teacher from a public school district in South Carolina.

Table A.1 shows the requirements relating to work experience.

Table A.1

Work Experience

Career and Technology Education & Work Experience Qualification Matrix						
CTE Qualification Level →		Bachelor's	Bachelor's +18	Master's	Master's +30	Doctorate
Education Level ↓	Work Experience in Area of Certification					
	High School Diploma or GED	4 Years of Related Work Experience	5 Years of Related Work Experience	6 Years of Related Work Experience	NA	NA
	30 Semester Hours in Area (Major)	3 Years of Related Work Experience	4 Years of Related Work Experience	5 Years of Related Work Experience	NA	NA
	60 Semester Hours in Area OR Associates Degree	2 Years of Related Work Experience	3 Years of Related Work Experience	4 Years of Related Work Experience	NA	NA
	90 Semester Hours in Area OR Associates +30	1 Year of Related Work Experience	2 Years of Related Work Experience	3 Years of Related Work Experience	NA	NA
Degree in Area OR	Bachelor's Degree	6 Months of Related Work Experience (or	1 Year of Related Work Experience (or	2 Years of Related Work Experience (or	NA	NA

Degree in Area AND Minimum of 21 Semester Hours IN Certification Area		internship). Can be non-continuous.	internship). Can be non-continuous.	internship). Can be non-continuous.		
	Bachelor's + 18 Hours		6 Months of Related Work Experience (or internship). Can be non-continuous.	1 Year of Related Work Experience (or internship). Can be non-continuous.	NA	NA
	Master's Degree			6 Months of Related Work Experience (or internship). Can be non-continuous.	NA	NA
	Master's +30 Hours	NA	NA	NA	6 Months of Related Work Experience (or internship). Can be non-continuous.	NA
	Doctorate	NA	NA	NA	NA	6 Months of Related Work Experience (or internship). Can be non-continuous.

(South Carolina Department of Education, n.d.)

In the computation of experience credit, the following conditions will apply:

- Full-time equivalents (FTEs) of the 190-day school year will be utilized as the basis of computation. The minimum experience to be credited shall be one-tenth FTE per year; the maximum experience to be credited shall be FTE per year. A school day is defined as a minimum of seven hours.
- One year of experience may be credited provided the teacher is employed in a full-time position for a minimum of eight-tenths (.8) of the contract year but in no case fewer than 152 days.
- Partial-year experience may be utilized to compute full years of experience provided the sum of the partial experience meets the requirement stated in number 1, above.
- Summer school teaching credit will be calculated at the rate of two (2) days of summer school as the equivalent of one (1) regular school day provided the teacher works one (1) session for four (4) hours per day or at the rate of one (1) regular school day provided the teacher works two (2) sessions for eight (8) hours per day. Effective July 1, 2001 summer school teaching credit may be added to partial years of experience.

For an individual to receive experience credit, the educator must verify full-time or part-time employment in one of the following educational positions:

- Experience K – 12 Educator is defined as: A professional position in Head Start, K – 12, School Administration, Adult Education, Home Bound, and Teacher's Aide in a public, private, or parochial elementary or secondary school.

- Additional Professional Education Experience is defined as: A professional education position in a city, county, state, or federal educational system that supports the primary education program of school-aged or adult population. A professional education or training position in a privately funded education program for school-aged or adult populations. A position description is required.
- Experience as a Higher Education Academic Professional is defined as: A professional position in a regionally accredited institution of higher education or an institution with teacher education programs approved by the South Carolina State Department of Education.

For professional instructional personnel in higher education settings, the Table A.2 is used to compute experience credit based on semester hours taught.

Table A.2

Computation of credit earned for higher education settings

Semester Hours Taught Within School Year July 1 – June 30	FTE	Years Credit Earned
3	1.0	0.1
6	1.0	0.2
9	1.0	0.3
12	1.0	0.4
15	1.0	0.5
18	1.0	0.6
21	1.0	0.7
24	1.0	1.0

(South Carolina Department of Education, n.d.)

A total of 24 semester hours per school year (July 1 – June 30) is considered full time teaching. Example: If an educator taught 12 semester hours in the fall of 2003 and 12

semester hours in the spring of 2004, he/she would receive full time credit. This can be in any combination of semesters (12 hours in the fall, 9 hours in the spring, and 3 hours in summer school), or a combination of different colleges. Summer school at the end of the academic year will be added to the total semester hours taught during the year just completed.

DIRECT Institute

Candidates seeking CTE Work-Based Certification must complete the DIRECT Institute which is a pre-service/in-service program that monitors licensing and examinations and provides professional development through workshops, mentor visits, and other assignments.

Professional Licensure/Examinations

Candidates for certification through CTE Work-Based Certification must verify competence in their subject areas as well as competence in basic skills (literacy and numeracy). The CTE subject area determines whether teachers must provide a professional license/certification or whether they must take one of two CTE competency tests: Competency Trade Exam or Industry Certification Exam.

Prior to employment, applicants for certification in specific CTE areas must provide verification of a current, nationally accepted license, registration, or certificate. The CTE subject areas and licensing agencies are listed below:

- Health Science Technology - State Board of Nursing Registered Nurse's license or an approved nationally recognized licensure or registry
- Information Technology (Networking) - Active, nationally recognized certification in Information Technology Networking

- Information Technology (Programming) - Active, nationally recognized certification in Information Technology Programming
- Cosmetology - South Carolina Board of Cosmetology Instructor's license
- Barbering - South Carolina Board of Barber Examiners Instructor's license

Instead of the professional licenses listed above, all other CTE teachers must complete some type of examination to verify competence in their respective areas.

Applicants for CTE certification in the following areas must successfully complete a **Competency Trade Examination** which must be taken during the first year of certification and passed by the end of the second year (June 30) of certification. These examinations are administered in August and February each year.

- Culinary Arts
- Brick Masonry
- Cabinet Making
- Digital Art and Design (Commercial Art)
- Media Technology
- Diesel Mechanic
- Drafting
- Electronics
- Graphic Communications
- Industrial Maintenance
- Protective Services (Fire Fighting)
- Protective Services (Law Enforcement)

- Small Engine Repair

Applicants for CTE certification in the following areas must pass an **Industry**

Certification Examination by June 30 of the second year of certification. The CTE subject areas and licensing/certifying agencies are listed below:

- Environmental Control Systems - Municipal Association of South Carolina (MASC) as a mechanical or air conditioning journeyman or North American Technical Excellence (NATE) Heating, Ventilating, and Air Conditioning Exam
- Automotive Collision Repair - Certification by the National Institute for Automotive Service Excellence (ASE) as master collision repair/refinishing technician
- Automotive Technology - ASE certification as an automotive technician in the areas of suspension and steering, brakes, electrical/electronic systems, and engine performance
- Carpentry - National Center for Construction Education and Research (NCCER) National Craft Assessment Commercial Carpentry exam
- Electricity - National Center for Construction Education and Research (NCCER) National Craft Assessment certification as an industrial electrician or MASC certification as a journeyman electrician or a residential journeyman electrician
- Machine Tool Technology - Candidate must attain all seven National Institute for Metalworking Skills (NIMS) Level I credentials
- Plumbing - MASC certification as a journeyman plumber

- Sheet Metal - MASC certification as a sheet metal journeyman
- Welding - American Welding Society (AWS) certification as a certified welder or a certified welding educator

All CTE Work-Based Certified teachers must take/pass a basic skills examination prior to receiving a professional certificate. Teachers must take the test during the first year of certification and must pass the exam by June 30 of the fifth year of certification. The PRAXIS I exam is required for culinary arts, health science, and information technology. All other certification areas have the option of WorkKeys or PRAXIS I.

Coursework

In order to receive a professional certificate, candidates for CTE Work-Based certification must complete required coursework before June 30 of the fifth year of certification. Teachers must complete six semester hours of approved education coursework in specific areas. One semester hour is equivalent to fifteen contact hours or twenty renewal credits. Time spent in daily workshops or mini-sessions cannot be combined to meet this requirement. Approved coursework areas are:

- Methods of Teaching
- Curriculum Design/Development
- Classroom and Laboratory Management
- Testing and Measurement Assessment
- Behavioral Psychology
- Integrating Technology into the Classroom
- Induction – First Year Teaching

Additional or advanced coursework in a CTE teacher's certification/content area cannot be used. In lieu of the approved coursework areas listed above, a school district may request from the Division of Educator Quality and Leadership, approval to allow CTE teachers to complete alternative courses appropriate to their professional development needs as determined by their ADEPT/SAFE-T formal performance evaluation. (South Carolina Department of Education, n.d.)

CTE teachers may receive credit for courses completed via a variety of methods. Teachers in Culinary Arts, Health Science, and Information Technology must possess an associate's degree or higher to receive initial certification. All other areas must take coursework using the following options. First, they may be granted credit for courses completed before entering the CTE Work-Based Certification program if received from an accredited college or university. Credit will be granted if:

- the course was in addition to the coursework required for initial CTE entry,
- the coursework was in the appropriate professional education areas,
- an official transcript is provided for verification, and
- the coursework was completed within two years of receiving the Induction certification.

Second, teachers may receive credit by taking courses from regionally accredited colleges or universities. Third, teachers may receive professional education credit through district professional development courses. These offerings must be approved by a college or university or the Office of Educator Certification for renewal credit. Fourth, CTE may receive credit for online courses taken at an accredited college or university.

Additionally, teachers can earn credit for online coursework through South Carolina's

Educational Television, Instructional Television and e-LearningSC PD. Fifth, CTE teachers may obtain credit for taking “Educators in Industry” offered through the South Carolina Education and Business Summit which is offered during the summer of each year. Sixth, CTE teachers may earn credit by attending concurrent sessions at the South Carolina Education and Business Summit. Teachers who choose this option may receive one semester-hour credit for every twenty Education and Business Summit renewal credits. These credits can be accrued for a maximum of five years.

Professional development sessions include Methods of Teaching, Classroom and Lab Management, Curriculum, and Assessment. Sessions are held on five consecutive days in July, five Saturdays in the fall, and four Saturdays in the spring and must be completed by the end of the second year of certification. During the first year of certification, teachers must complete a mentor visit of a veteran teacher assigned by the Office of Career and Technology Education. During the visit, teachers are required to collect samples of lesson plans, student assessments, long-range plans, class syllabi, recruitment materials, and other helpful information. Teachers are encouraged to maintain contact with their mentors in an effort to receive support throughout the year. During a Direct Institute sessions, teachers are required to do a three minute presentation about one instructional strategy they observed during the visit. In addition to the professional development sessions, teachers must complete a competitive event assignment by the end of the second year of certification.

Another component of the Direct Institute requires teachers to attend and/or participate in a CTE competitive event in the spring of the second year of certification. Teachers may choose from any Career and Technology Student Organization (CTSO):

Family, Career and Community Leaders of America (FCCLA); Health Science Students of America (HOSA); ProStart (Culinary Arts); and SkillsUSA (Engineering and Industrial Technology). The purpose of this assignment is for teachers to learn about extended learning opportunities that are available and to encourage them to incorporate CTSOs in their curriculum.

APPENDIX B

IRB PERMISSION



OFFICE OF RESEARCH COMPLIANCE

January 29, 2014

Mrs. Sherry Rivers
College of Education
Education Administration
Wardlaw
Columbia, SC 29208

Re: Pro00031805

Study Title: *A Study of the Preparation and Retention of Work-Based Certified Career and Technical Education (CTE) Teachers in South Carolina*

FYI: University of South Carolina Assurance number: FWA 00000404 / IRB Registration number: 00000240

Dear Mrs. Rivers:

In accordance with 45 CFR 46.101(b)(2), the referenced study received an exemption from Human Research Subject Regulations on 1/24/2014. No further action or Institutional Review Board (IRB) oversight is required, as long as the project remains the same. However, you must inform this office of any changes in procedures involving human subjects. Changes to the current research protocol could result in a reclassification of the study and further review by the IRB.

Because this project was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

Research related records should be retained for a minimum of three years after termination of the study.

The Office of Research Compliance is an administrative office that supports the USC Institutional Review Board. If you have questions, please contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

APPENDIX C

INTERVIEW QUESTIONS

Thank you for taking time to participate in this interview process which is designed to get your perception of South Carolina's Career and Technology Work-Based Certification Program. The interview will focus on the various components/requirements of the program which include:

Prior to Initial Certification:

1. Education
2. Work Experience
3. Professional Licensure (in some content areas)

DIRECT Institute—Pre-Service/ In-Service Program (Years 1-5 of licensure)

1. Professional Development Sessions—Methods of Teaching, Classroom and Lab Management, Curriculum, and Assessment
2. Mentor Visits
3. Competitive Event Assignment
4. Examination—Competency Trade Examination or Industry Certification Examination
5. Performance Evaluation (ADEPT)
6. Coursework
7. Basic Skills Examination—PRAXIS I or Work Keys

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1. Which subjects do you teach?
 2. How long have you been teaching career and technical education in South Carolina?
 3. When did you begin the work-based certification program? When did you complete the program?
 4. Are you still teaching the same subject as when you completed the program? If not, what were you teaching then?
 5. Are you still teaching in the same school as when you completed the program?
 6. When you entered the program...
 - a. What was your level of education? If you had a degree, what was your major?
 - b. How many years of work experience did you have?
 - c. Did you possess a professional license? If so, which one?
 7. Which professional development sessions were most helpful and why? Which were least helpful and why? What would you add or delete from the sessions?
 8. Describe your mentor experience. Was your assigned mentor in the same school as you were? Did your mentor teach the same subject that you teach? What was

- the most helpful aspect of your mentoring experience and why? What was least helpful and why? What would have made your experience more successful?
9. How did the competitive event assignment enhance your knowledge/understanding of your student organization? Are you a sponsor of a student organization? If so, which one?
 10. Were you required to take a competency trade examination? If so, which one?
 11. Were you required to take an industry certification exam? If so, which one?
 12. Which courses did you take to complete the requirements of the program? (This does not include the DIRECT Institute). What methods did you use to complete the courses? (ie. Online courses, Educators in Industry, Business and Education Summit, etc.)
 13. Is there any component(s) of the program that influenced your decision to remain in the teaching profession? Explain.
 14. What suggestions do you have for improving the career and technical work-based certification program in South Carolina?

APPENDIX D

CONSENT FORM

A Study of the Preparation and Retention of Work-Based Certified Career and Technical Education (CTE) Teachers in South Carolina

Sherry Kennedy Rivers

Introduction and Purpose

You are invited to participate in research study conducted by Sherry Kennedy Rivers. I am a doctoral candidate in the Educational Leadership and Policies Department at the University of South Carolina. I am conducting a research study as part of the requirements for my Ph.D. degree in Educational Administration, and I would like to invite you to participate. The purpose of the study is to examine the work-based certification program for beginning career and technical teachers in South Carolina. This form explains what you will be asked to do if you decide to participate in this study. Please read it carefully and feel free to ask any questions you like before you make a decision about participating.

Description of Study Procedures

The study will consist of an interview designed to get your perception of South Carolina's work-based teacher certification program for career and technical teachers (DIRECT Institute). I will ask a series of questions that seek to ascertain your opinion about the strengths and weaknesses of the program. I request that you allow me to audio tape the interview in an effort to ensure that all details are recorded accurately. It is preferable to conduct the interview in person; however, if we cannot make arrangements, the interview can be conducted via telephone. After interviewing all subjects, I will compile the results which will be reported in my dissertation.

Risks of Participation

There are no known risks associated with participating in this research except a slight risk of breach of confidentiality, which remains despite steps that will be taken to protect your privacy. In order to minimize the risk of this occurring, I will take several precautions. First, the interview will take place in a location that is private and free from interruptions. Second, I will destroy any audio, electronic, and written records of our interview to eliminate the chances of information being transferred to other parties.

Benefits of Participation

Taking part in this study is not likely to benefit you personally. However, this research may help us to provide suggestions for improving the work-based teacher certification program in South Carolina.

Costs

There will be no costs to you for participating in this study (other than for any parking or gas expenses you may have).

Confidentiality of Records

The only document with your name on it will be this consent form, and it will be stored separately from your study information. Your responses will only be identified by a participant number, which will not be linked to your identity. Therefore, no one, not even the researchers, will be able to determine which information you supplied. Study information will be stored in locked filing cabinets and in password protected computer files at the University of South Carolina. The results of the study may be published or presented at meetings, but your identity will not be revealed.

Contact Persons

For more information concerning this research, or if you believe you may have suffered a research related injury, you should contact Sherry Kennedy Rivers at 803-419-7612 or email sherryrivers@bellsouth.net.

You may also contact my advisor, Dr. Zack Kelehear at 803-777-2822 or email kelehear@mailbox.sc.edu. If you have any questions about your rights as a research subject, you may contact: Thomas Coggins, Director, Office of Research Compliance, University of South Carolina, Columbia, SC 29208, Phone - (803) 777-7095, Fax - (803) 576-5589, E-Mail - tcoggins@mailbox.sc.edu

Voluntary Participation

Participation in this study is voluntary. You are free not to participate or to withdraw at any time, for whatever reason, without negative consequences. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner.

Signatures /Dates

I have read the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions. I give my consent to participate in this study, although I have been told that I may withdraw at any time without negative consequences. I have received (or will receive) a copy of this form for my records and future reference.

Participant**Date**

As a representative of this study, I have explained to the participant, the procedures, the possible benefits, and the risks of this research study; the voluntary nature of the study; and how privacy will be protected.

Sherry Rivers Kennedy**Date**